# Resumes:

# Biosystems Engineering





June 2023 - May 2024



# Student resume overview Biosystems Engineering



Study Association BSc Agrotechnology & MSc Biosystems Engineering

June 2023 - May 2024

### **CONTACT INFORMATION**

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Study association BSc Agrotechnology and MSc Biosystems Engineering

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### Master programme of Biosystems Engineering

PROGRAMME DIRECTOR: STUDY ADVISOR:

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### **PREFACE**

Dear reader,

This guide contains the resumes of twenty six students of the MSc Biosystems Engineering at Wageningen University & Research who are just graduated or will graduate up until July 2024. The students are placed in order of the expected graduation date. Before the pages with our students resumes, you will also find recommendations from companies and of one of our chair groups. On top of that, a summary of the study programme of Biosystems Engineering is given. More detailed information about the study programme of Biosystems Engineering, consisting of the bachelor Agrotechnology and the master Biosystems Engineering, can be found at the end of this book.

This guide is made by the Master Committee of Heeren XVII. Heeren XVII is the study association for the Agrotechnology bachelor students and the Biosystems Engineering master students. The study association organizes a wide range of activities that differ a lot in nature and scope. Heeren XVII has the following objectives:

- √ Protection of the interests of students Agrotechnology and Biosystems Engineering.
- √ Encouraging of interaction between students.
- V Examining social relevance of the study programmes Agrotechnology and Biosystems Engineering.
- V Controlling the quality of these study programmes.
- V Encouraging contacts between students Agrotechnology, Biosystems Engineering and the employees of Wageningen University & Research, especially with the for the studies important chairgroups and institutes.
- √ Encouraging of personal and career-related development among students Agrotechnology and Biosystems Engineering.

To reach these objectives students are represented in the programme committees. Furthermore different activities are organised like a company day, a parents day, making a yearbook, excursions, sport events and social drinks. More information about the study association can be found on our website, www.heeren17.nl. For questions about the activities of Heeren XVII or other remarks you can always contact us by sending an email to mastercommittee.hxvii@wur.nl.

On behalf of the Master Committee of study association Heeren XVII,

Koen van Dijck Mark O'Dowd Geert van Maldegem Gijs Rutgrink Ellis van de Laak

#### **Recommendation Committee:**

Prof. dr. ir. A.P.J. Mol Prof. dr. ir. E.J. van Henten

Prof. dr. ir. P.W.G. Groot Koerkamp

Dr. ir. G.D.H. Claassen Prof. dr. ir. B. Tekinerdogan Prof. dr. ir. H.H.M. Rijnaarts

Prof. dr. ir. J.H. Bitter

Rector Magnificus of Wageningen University Professor in Biosystems Engineering

Professor in Biosystems Engineering
Professor in Biobased Chemistry and Technology

Associate Professor in Operations Research and Logistics

Professor in Information Technology Professor in Environmental Technology

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### **AIM OF STUDY PROGRAMME**

Biosystems Engineering is a multi-disciplinary academic programme that fulfils the needs of humankind in terms of sustainable food, feed, fuels, fibres and chemicals. It investigates, develops and combines knowledge and methods from technical sciences with biological, environmental, agricultural and social sciences. The Biosystems Engineering programme prepares students to address aspects of the question "How to sustainably feed 10 billion people in 2050?".

Systems engineering is central to this programme. Systems thinking ensures that generated technical solutions address relevant issues at the level of a system as a whole instead of focussing on isolated aspects or sub-systems. Systems engineering requires a multi-disciplinary mindset and expertise, and this aspect of the programme is supported by offering in-depth courses in selected relevant disciplines. Biosystems Engineering students are trained as system architects and learn to deal with the complexity of today's biosystems in the agri-food chain. Upon completion of this programme, students can act as an intermediary between different disciplines as well as between the application domain, science, engineering and society.

In the Biosystems Engineering programme, the heart of the domain is the agri-food chain and parts thereof. The agri-food chain starts with production in the field, in the barn or in the greenhouse, or sometimes even with plant breeding. The chain continues via intermediate steps like post-harvest grading and storage, processing, distribution, warehousing and retailing, ending with the consumer. A resilient and sustainable future requires down-stream side product utilization. At the same time, consumer demand governs the planning and the products that have to be produced, and streams of materials are returned in the chain; thus feedback in the chain is also assessed. Besides the more classical animal, arable or greenhouse production systems, the programme addresses more recent production systems for algae, seaweed, aquaculture and insects.

The Biosystems Engineering paradigm not only targets the improvement of individual steps in the agrifood chain, it also aims to improve larger parts of the chain. Design of production systems, sensing, data analysis, modelling and precise management are examples of the former, while reorganising the material flow in the chain by means of embedding pre-processing and on-farm recycling, optimising logistics on the farm as well as in the post-harvest chain, and effective software architectures and data management are examples of the latter.

Biosystems Engineering is an engineering programme similar to those at other technical universities in the Netherlands. However, its focus makes the programme unique: living organisms and products that are perishable, ripening or subject to decay. The emphasis of the programme is on acquiring in-depth knowledge, integrating knowledge, and the development of innovative technology and systems for a biobased society.

### WHY STUDENTS OF BIOSYSTEMS ENGINEERING?

### WUR Farm Technology Group experience

It won't come as a surprise to you that as a professor of Biosystems Engineering working at the Farm Technology Group of Wageningen University, I am a proud supporter of and contributor to the Master Programme Biosystems Engineering at Wageningen University. A keen interest in technology is deeply rooted in the hearts of the staff members of the Farm Technology Group and the students Biosystems Engineering alike. Curiosity, a desire to innovate the agri-food chain and entrepreneurship are some other facets. Students and staff also share a strong interest in and commitment to the agri-food chain and to the need to provide a growing world population with food, feed, fuels and fibres in a sustainable way.

The MSc programme Biosystems Engineering is unique both nationally and internationally. It differentiates itself from other programmes by a strong emphasis on (parts of) the agri-food chain containing living organisms and products that are perishable, ripening or subject to decay. Non-linear dynamic responses to environmental factors, uncertainty in system inputs (e.g. weather, consumer demand, prices) and inherent variability within natural produce are amongst the particularities of biosystems that are addressed in some detail in this programme. In many other ways Biosystems Engineering is similar to engineering programmes at technical universities. The similarity is in the type of courses, the systems thinking approach and the systematic approach to science and engineering. With a solid multi-disciplinary training the programme Biosystems Engineering delivers systems engineers and systems architects; a key asset for employers when dealing with complex multi-disciplinary challenges in research and/or the development of new products.

Prof. dr. ir. Eldert J. van Henten Farm Technology Group Wageningen University

### WHY STUDENTS OF BIOSYSTEMS ENGINEERING?

### Company experience from HatchTech

At HatchTech, we have one aim: to provide our customers with consistent superior chick quality. We create research-based products for incubation, chick transportation and brooding. Knowledge of technology is key to meet our aim. Colleagues with the bachground of Agrotechnology are a perfect fit within HatchTech. Agrotechnology students have a broad range of expertise which makes them employable in different roles. We have several colleagues that studied Agrotechnology at different departments: Coaching & Training, Sales, Purchasing, IT and Product Engineering. To describe the diversity within the company, some personal experiences are given here:

"My role at HatchTech is a diverse combination of technical, animal and international social aspects. My finalised study Agrotechnology is a perfect bachground for this job at HatchTech." Marco Thiessen, Hatchery Coach at HatchTech

"At our department we are continuously busy with understanding the relation between the egg/chicken and the incubator. We develop practical solutions to support the superior chickens with HatchTech technology every day."

Niek van den Top & Onno Flipse, Product Engineers at HatchTech

"After my internship I started at HatchTech. I can use my Agrotechnology skills to support our customers. My job is a marvellous combination of technology, cultures and food production. At HatchTech I can reach my ambitions."

Marc de Visser, International Sales Manager at HatchTech



### Company experience from Marel

When I applied for a Job with Marel (Stork at that time), I was asked why somebody with my background (agrotechnology) would be needed in the company. My spontaneous answer then was that I did not understand how they could do without. Now some 30 years later, employing on average 10-15 "technical" agrotechnologists, I am still convinced that's true. They have proven their value as leaders and specifically as the people who connect different disciplines. In whatever role: procestechnolgist, R&D specialist, layout designer, logistic consultant or technical director. The broad view on global agrotechnological challenges is necessary to be able to design new product or business concepts. They have the right DNA to be successful in our world; pragmatic thinkers and cosmopolitans who like to take action and bring people together. I am happy that gradually students find their way to Marel themselves. Originally that was not logical in the eyes of many, because we do not supply equipment to farmers (other than life chicken handling). There are different reasons why the agro technologists chose to work for us. Very important is that the complexity of our challenge is very interesting and that the amount of money available for R&D, 5-6% of turnover, is much bigger than in most machine businesses. The equipment is often being used 16 hours per day which allows for more advanced technical solutions to be implemented. The innovation project teams consist of many different disciplines and often 3rd party specialists and universities are involved as well. On the other hand... Marel also is small. As agrotechnologist you can still physically see the result of your work being build and used by customers and get their direct feedback.

Wim Beeftink, Technical director



### **Chris Bulthuis**

Date of birth : 27 April 1999

Nationality : Dutch

Telephone : +31 (0)6 - 374 826 41 E-mail : cgabulthuis@gmail.com

LinkedIn : www.linkedin.com/in/chris-bulthuis-059576177

Address : Warffum, The Netherlands





### **PERSONAL NOTE**

MSc Biosystems Engineering Student specialized in Geo-Information, Remote Sensing and Precision Farming Control. My ambition is to apply my passion for arable farming and the technology involved in this sector to improve and develop solutions for technical problems related to machinery and software applied in arable farming systems.



----- REFERENCES -----

References available upon re-

Soccer

**Fitness** 

quest.

### **EDUCATION**

#### **MSc Biosystems Engineering**

Sep 2021 - present

Wageningen University & Research, Wageningen

Orientation/specialisation: Geo-Information, Remote Sensing and Control systems. Thesis: "The soil impact of headland turning operations in path-planning for autonomous tracked vehicles."

Relevant Courses: Control Methods for Precision Farming, Advanced Earth Observations, Soft Robotics, ACT project on exploring product opportunities for the application of hemp fibres and chiffs.

### BSc Biosystems Engineering (Agrotechnologie)

Sep 2018 – Aug 2021

Wageningen University & Research, Wageningen

Thesis: "Determining Biomass and Chlorophyll Content of Potatoes using UAV and WEED-IT Sensor data." (Grade: 8.0)

Minor Courses: Remote Sensing, Geo-Information Tools

Relevant Courses: Biology of Plants, Soil-Plant Relations, Soil Remedation and Degradation, CAD and Mechanics, Decision Science for Technologies, Control Engineering, Programming in Python, Statistics

#### BSc Mechanical Engineering (Werktuigbouwkunde)

Sep 2017 – Jan 2018

University of Twente, Enschede

Relevant Modules: Design and Manufacturing, Energy and Materials



### **WORK EXPERIENCE**

#### **Agricultural Employee**

Apr 2017 - present

V.O.F Eendhuizen (Garsthuizen, the Netherlands)

Involved in an arable farming operation ran in the Netherlands. The operation is mainly focussed on the propagation of seed potatoes. Next to that, the farm is involved in the production and processing of onions and carrots for Albert Heijn. Furthermore, biological potatoes, sugar beet, winter wheat and summer barley are produced. I have been involved in all labour related to the production and processing of these crops.



### **OTHER EXPERIENCE**

### Research Assistant

Apr 2021 - Jul 2021

Wageningen university & Research (Wageningen, the Netherlands)

Assisted in performing data acquisition in fieldwork related to my BSc thesis. The activities involved Chlorophyll measurements and harvesting above ground biomass in collaboration with Wageningen Plant Research (Agrosysteemkunde).

Internship Mar 2023 - Jul 2023

Vantage Agrometius (Utrecht, the Netherlands)

Executed a project on field potential maps generated by the Trimble AG software using satellite imagery for the implementation of precision agriculture in the Netherlands.

### **Frans Kemp**

: 29 September 2000 Date of birth

Nationality : Dutch

: +31 (0)6 - 280 794 55 Telephone E-mail : f.p.kemp@outlook.com

LinkedIn : www.linkedin.com/in/franskemp

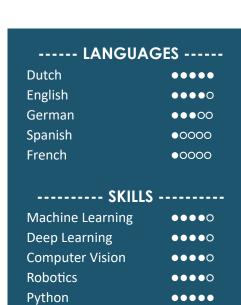
Address : IJzendoorn





### **PERSONAL NOTE**

I am passionate about applying technology in agriculture and I have a special interest in automation. During my studies I focussed on machine and deep learning, mainly in the context of computer vision and robotics. I am eager to apply my obtained knowledge and skills in practice, to contribute to future proof food production.



Drivers Licence (B)

**MATLAB** 

### ----- INTERESTS -----

Artificial Intelligence Image processing

Automation

Product development

Horticulture

### ----- PUBLICATIONS -----

ICCC 2022 - doi.org/jzth Instance segmentation and pose estimation of chicken pieces in a cluttered environment

### ----- HOBBIES -----

Reading Kayaking

Home automation

### **EDUCATION**

#### **MSc Biosystems Engineering**

2021 - present

Wageningen University & Research, Wageningen Orientation/specialisation: Farm Technology

With courses on computer vision, machine and deep learning and robotics Thesis: Reactive path planning for a robot arm using imitation learning

### **BSc Biosystems Engineering (Agrotechnologie)**

2018 - 2021

Wageningen University & Research, Wageningen Orientation/specialisation: Robotics and horticulture

Thesis: Instance segmentation and pose estimation of chicken pieces in a cluttered environment



•••00

### WORK EXPERIENCE

#### **General** employee 2015 - present

Boomkwekerij J.W. Crum (Dodewaard)

All occurring tasks in and around the tree nursery

#### Diverse seasonal work

2012 - 2017

Local agricultural companies

Performing tasks like weeding and harvesting fruits

### **OTHER EXPERIENCE**

#### Internship: Plant recognition using deep learning. 2023 - present

Tuinbouw Technisch Atelier (Bleskensgraaf)

MSc Internship on computer vision for plant detection

### **Member of Data Committee**

2022 - 2023

Study Association Heeren XVII (Wageningen)

Maintaining and developing the association database, including data analysis and process automation

### **Member of Education Quality Committee (OKC)**

2021 - 2022

Study Association Heeren XVII (Wageningen)

Discussing and evaluating courses together with teachers based on student feedback

### Martin de Man

Date of birth : 22 November 2000

Nationality : Dutch

Telephone : +31 (0)6 - 21912723 E-mail : martindeman@hotmail.nl

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Address : Herwijnen, the Netherlands





### **PERSONAL NOTE**

Enthusiastic Biosystems Engineer student eager to contribute to team success through hard work, attention to detail and good time management. Clear understanding of agricultural processes and operations, especially in dairy cattle farming. Motivated to learn, grow and excel in the agriculture sector.



### **EDUCATION**

#### **MSc Biosystems Engineering**

2021 - present

Wageningen University & Research, Wageningen

Orientation/specialisation: Several Animal Sciences courses

Thesis: 'Involving dairy herd behaviour into path planning of manure cleaning robots'. In this thesis, another way of cleaning was proposed, based on defecation behaviour of dairy cows, to improve cleanness of the barn and decrease cowrobot collisions. First defecation behaviour was modelled and thereafter, using reinforcement learning, the most efficient route was planned.

#### **BSc Biosystems Engineering (Agrotechnologie)**

2018 - 2021

Wageningen University & Research, Wageningen

Thesis: 'Quantifying characteristics of respiration in dairy cows by using 3D vision'. In this thesis, assessment of respiration was done by using simple 3D cameras, based on different machine learning techniques. In this way, problems of dairy cows can be detected in an early stage, based on changed respiration patterns.



### **WORK EXPERIENCE**

### Allround employee dairy farm

2010 - present

VOF JJC de Man (Herwijnen, the Netherlands)

Working on the home dairy farm, where I can do all daily tasks, such as milking, feeding, doing land work, giving medicines and doing administration/registration.

#### Packing employee slaughterhouse

2019

Kaldenberg Slagerijen (Vuren, the Netherlands)

Working at the packing departement where the meat is processed and packed

#### Dairy cow milker

2021 - present

Van 't Land Veehouderij VOF (Haaften, the Netherlands) Responsible for the whole milking process once a week



### **OTHER EXPERIENCE**

#### **Cattle judging**

- 1st place National Students Championship Cattle Judging (LSCV) 2022
- 1st place Provincial Championship Cattle Judging Gelderland 2022
- 4th place Dutch National Championship Cattle Judging 2022

Cattle judging

Horse shows

Hunting

### **Rick Fennema**

Date of birth : 21 January 2000

Nationality : Dutch

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LinkedIn : www.linkedin.com/in/rick-fennema

Address : Zaadstukken 3, Mussel





### **PERSONAL NOTE**

I have a passion for Precision Farming. Therefore, I am always focusing on working efficiently and trying to get to an optimal solution. When I want to learn something, I want to know every detail. I am a direct person and always want to make progress.





#### **MSc Biosystems Engineering**

2021 - present

Wageningen University & Research, Wageningen Orientation/specialisation: Precision Farming

Thesis: Coverage Path Planning on Headlands for Autonomous Field Operations Aim: No crossing of the field border by the robot and implement when covering the headland.

Relevant courses: Machine Learning, Control Methods for Precision Farming, Big Data, Advanced Earth Observation, Quantitative Analysis of Innovative Biosystems

### **BSc Biosystems Engineering (Agrotechnologie)**

2018 - 2021

Wageningen University & Research, Wageningen

Orientation/specialisation: Geo-Information and Remote Sensing

Thesis: (Im)precision of the working of an implement in agriculture caused by the type of linkage between implement and implement carrier

Aim: Assess the location of the implement relative to the implement carrier and the weight of the implement carrier for the accuracy of the wanted path for the implement.

Relevant courses: Biology of plants, soil-plant interaction, Geo-information Tools, Remote Sensing



### **WORK EXPERIENCE**

### All-round employee

2014 - present

Zorgboerderij de Spingberg, Jipsinghuizen

Making furniture, and supporting and leading people with a mental handicap.



### OTHER EXPERIENCE

#### Internship: Evaluate evapotranspiration models

2022 - present

Dacom Farm Intelligence, Haren

Assess the performance of different sources for predicting the evapotranspiration.

### Commitee member of study association "Heeren XVII"

Wageningen, the Netherlands

2020 - 2021

Organising an event where parents from members of HXVII can experience the life of their child during study time, and organising a pub quiz for the brothers and sisters from the members from HXVII.

### **Rik Vloedgraven**

Date of birth : January 1998

Nationality : Dutch

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E-mail : rikvloedgraven@hotmail.com

LinkedIn : https://www.linkedin.com/in/rikvloedgraven/

Address : Heeten, Overijssel





### **PERSONAL NOTE**

By working on my uncles farm I gained interest in dairy and technology. I learned a lot in this area by monitoring cow health and productivity with the help of management software and by using and maintaining various types of automation and farm machinery. This lead to the start of my BSc in Dier- en Veehouderij (Animal Husbandry). After my graduation I decided to proceed my studies with the MSc Biosystems Engineering. I would like to contribute to improving the agricultural sector by the use of technology. I am an open person, down to earth, critical and easy to work with.



### **EDUCATION**

#### **MSc Biosystems Engineering**

Sep 2021 - present

Wageningen University & Research, Wageningen

Orientation/specialisation: Farm Technology/Information Technology

Thesis: An image-based detection system of the calving process of dairy cows using Deep Neural Networks.

### BSc Animal Husbandry (Dier- en Veehouderij)

Sep 2017 - Jul 2021

Aeres University of Applied Sciences, Dronten

Thesis: A linear regression model for the detection of bovine mastitis by using several health indictors measured by an automatic milking system.



### **WORK EXPERIENCE**

#### Dairy farm worker

Jul 2013 - present

Melkveehouderij Voorhorst (Nieuw-Heeten, the Netherlands)

On Saturdays and during school holidays I work at this modern dairy farm. I carry out various tasks like feeding the cows and monitoring their health, performing maintenance on the milking robots and doing field work using tractors.

#### Material handler / forklift operator

Feb 2017 - Aug 2017

Showtuin Heeten (Heeten, the Netherlands)

For half a year, I worked full-time at this company. Main activities were to move around products like paving stones, paving tiles, sand and gravel using a forklift or wheel loader, loading cars/trailers of customers with products and keeping the outside terrain decent.



### **OTHER EXPERIENCE**

### Internship: R&D at milking robot manufacturer

Mar 2023 - present

Lely Technologies N.V. (Maassluis, the Netherlands)

Specific activities are confidential. I am doing R&D on the new milking robot. I am researching the performance of an experimental set-up and trying to improve it where possible.

### Internship: R&D at milking robot manufacturer

Jan 2021 - May 2021

Boumatic Robotics B.V. (Emmeloord, the Netherlands)

For two months, I was an intern at this pasture-based dairy farm of almost 600 cows. I carried out various tasks such as milking, fencing, feeding calves, tractor work, monitoring cow health, et cetera.

### Internship: Dairy farm

Apr 2018 - Jun 2018

*Prins V.O.F.* (Overschild, the Netherlands)

For two months, I was an intern at this grass-based dairy farm of around 160 cows located in Groningen. I carried out various tasks such as milking, feeding, tractor work, monitoring cow health, helping to build a new barn, et cetera.

Graduated: August 2023

### **Robert van Houten**

Date of birth : 28 November 2000

Nationality : Dutch

Telephone : +31 (0)6 – 57 65 51 78

E-mail : robertvanhouten@hotmail.com

LinkedIn : https://www.linkedin.com/in/robert-van-houten/

Address : Kloosterweg 4, 8424SH Elsloo



As a graduate student and ready for the labour market I am already experienced in working within a bigger organisation and co-participation within organisations. Combined with my interest for the agricultural domain I could be a good fit within your organisation. In my daily work I am used to working in a team and my colleagues describe me as an 'out of the box' thinker and being able to see things from a 'helicopter view'. I am strong in communication and always thinking from a solution oriented perspective. My professional interests lies within the logistics domain and working within process optimisation.





### **BSc Biosystems Engineering (Agrotechnologie)**

2018 - 2023

Wageningen University & Research, Wageningen

Orientation/specialisation: Individual minor based on courses in the entrepreneurial domain.



**Treasurer** Sep 2022 - present

Wageningen Student Council (Wageningen)

As a fulltime member of the student participatory council of WUR I am involved in the decision making of the Executive Board of WUR. In my daily work I am busy with formal dossiers and meetings with policy makers within WUR.

General worker Aug 2015 - present

Dairy farm "De Oolde Hof" (Makkinga)

Started with helping milking cows and developed myself throughout the years. I am now working on most of the technical jobs on the farm.

Packaging worker May 2018 - Aug 2018

Continental Candy Industries (Oosterwolde)

Order picker May 2017 - Dec 2017

Royal Smilde Foods (Oosterwolde)



First Aid responder for events Nov 2021 - present

The Red Cross Netherlands

**Application committee** Jan 2023 - Mar 2023

Interstedelijk Studenten Overleg (ISO) (Utrecht)

Responsible for selecting a new fulltime board for ISO. ISO is an organisation which is representing students on a national level and working a lot with the Ministry of Education and lobbying within the Dutch parliament.

#### Member of different committees

Sep 2020 - Jun 2022

Heeren XVII (Wageningen)

Member of the website committee & the company meeting day committee

Graduated: August 2023

### **Thijmen Visser**

Date of birth : 4 June 1995 Nationality : Dutch

Telephone : +31 (0)6 - 20371829 E-mail : Tijmen.visser@live.nl

LinkedIn : www.linkedin.com/in/tijmen-visser-b31129141

Address : Wageningen, Netherlands





### **PERSONAL NOTE**

I am curious and broadly interested, which makes it easy for me to get into different subjects. In my younger years, I was active in organizing weekends, game days and was treasurer at the rowing club. The active involvement continued during my student days in various committees and activities. Regarding my studies, I get energy from innovating, developing, improving and optimizing dynamic processes. In short: I am open to many challenges and I will persevere until there is a good result!



### **EDUCATION**

#### **MSc Biosystems Engineering**

Sep 2021 - present

Wageningen University & Research, Wageningen

Orientation: Operations Research and Logistics, Information Technology and Farm Technology.

Thesis: Valorisation of mixed food waste streams from supermarkets

Internship: Business process analyst, focusing on Process mining and analyses at royal de Heus voerders.

### BSc Biosystems Engineering (Agrotechnologie)

2016 - 2021

Wageningen University & Research, Wageningen

Specialisation: Minor Animal Science

Thesis: Detection of the cow's head position by ultrasound for methane measurements.

### Pre-university education (VWO)

2008 - 2016

Nature and Technology, Nature and Health.



### WORK EXPERIENCE

Laboratory Assistant at Opure (part-time job)

Apr' 2022 - present

#### Student assistant

Sept' 2018 -Jul' 2020

Wageningen University (Wageningen, the Netherlands)

Student assistant at the course engineering design, CAD and mechanics at Wageningen University.

#### Agricultural employee

2015 - 2020

Straathof Flowers



### **OTHER EXPERIENCE**

#### **Urban Greenhouse Challenge #3**

2021 - 2022

Wageningen, the Netherlands

Design a greenhouse for a community in Washington DC with an interdisciplinary team, achieved first milestone (in the top 20 in the world).

### Committee member of study association Heeren XVII

2016 - present

Wageningen, the Netherlands

Almanac committee function treasurer, Website committee.

### Catholic student association Sint Franciscus Xaverius

2016 - present

Wageningen, the Netherlands

Board year at the NOIAM sorority, Awakening of the NOIAM sorority, Bar committee, year club.

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Cook

To do odd jobs

Graduated: September 2023

### **Bas Josten**

Date of birth : 3 August 1999

Nationality : Dutch

Telephone : +31 (0)6 – 291 576 52 E-mail : basjosten@hotmail.com

LinkedIn : www.linkedin.com/in/bas-josten/





### **PERSONAL NOTE**

I am a Biosystems Engineer with an passion for precision livestock farming. Currently, my personal interests are mainly in combining computer vision with artificial intelligence to assess and improve animal welfare. I enjoy applying my technical knowledge to solve relevant issues, but am also eager to gain new knowledge in my future career. In addition, I am calm and dedicated, and have a keen eye for detail.





#### **MSc Biosystems Engineering**

Sep 2021 - present

Wageningen University & Research, Wageningen Specialisation: Farm- and Information Technology

Thesis: Relationship between pig lying behaviour and indoor climate by combining sensor- and camera technology.

#### BSc Biosystems Engineering (Agrotechnologie)

2017 - 2021

Wageningen University & Research, Wageningen

Thesis: Automated detection of rumen movement in dairy calves by using 3D vision technology.

**BSc Minor** 2017 – 2021

Latvia University of Life Sciences and Technologies, Jelgava Faculty of Agriculture and Faculty of Food Engineering.



### WORK EXPERIENCE

#### Dairy Student Intern 2023 – 2023

West Central Research and Outreach Center (Morris MN, USA)

Assisting team of researchers in evaluating precision technologies in the dairy herd at the research center.

Intern Smart Farming 2022 – 2023

Connecting Agri&Food (Uden, the Netherlands)

### Product Development Intern 2019 – 2020

Lely (Maassluis, the Netherlands)



#### Photo Committee Member 2018 – 2022

Wageningen, the Netherlands

Taking, editing, sorting, and uploading pictures taken during activities of Heeren XVII.

Scout's Leader 2018 – 2022

Scouting Gillesa, Gilze.

Organizing weekly activities, camping weekends and summer camps for children from 7 to 11 years old.

Reading

#### Graduated: October 2023

### **Axel Streit**

Date of birth : 21 August 1999

Nationality : American/French/Swiss

Telephone : +1 (281)-908-2005 (Whatsapp) E-mail : axelstreit123@gmail.com

LinkedIn : www.linkedin.com/in/axel-s-ba67a1151/

Address : Houston, Texas USA





### **PERSONAL NOTE**

I am a driven, open-minded engineer who is motivated to make food production systems as sustainable as possible with respect to people, the planet, and profit via automation. I have developed skills in data acquisition, robotics, prototyping, and management through my education and diverse experience.



### **EDUCATION**

MSc Biosystems Engineering 2022 – present

Wageningen University & Research, Wageningen

Orientation: Farm Technology

Thesis: Effectiveness of robotic active object learning.

BSc Aerospace Engineering 2017 – 2021

*University of Texas – Austin, Austin*Orientation: Astronautical Engineering

Grade: 3.5/4



Operations Manager/Guide 2020 - 2021

Door County Kayak Tours (Sturgeon Bay, WI)

Managed scheduling and day-to-day operations of storefront and ecotourism operation serving up to 200+ customers per day.

**Chief Engineer** 2019 – 2020

Longhorn Rocketry Association (Austin, TX)

Designed high-level systems & interfaces for organization's first supersonic sounding rocket (Mach 2+)

Point of contact between technical team leads and project manager Managed requirements, technical reports, and led design reviews.

#### **Data Acquisition Engineer**

March-Sept' 2019

Texas Rocket Engineering Lab (Austin, TX)

Programmed data acquisition software/dashboard in LabView for stress tests of pressure vessels.

Responsible for calibration and troubleshooting of sensors and their interfaces Wrote procedures relating to software and DAQ systems.



#### Middle/Long Distance Track & Field Coach

2018

St. Francis School (Austin, TX)

Wrote workouts for and supervised team of 25 middle school athletes.

Mathematics Tutor 2021-2022

Club Z! In-home Tutoring Services Southwest Austin

Customized and delivered lesson plans for students aged 9-17.

Graduated: October 2023

### **Thomas Frankes**

Date of birth : 11 April 1999

Nationality : Dutch

Telephone : +31 (0)6 - 631970083

E-mail : Thomas.jelle.frankes@gmail.com

LinkedIn : www.linkedin.com/in/thomasjellefrankes9a1031183

Address : The Hague, Netherlands



### **PERSONAL NOTE**

I'm a biosystems engineer who has a focus on creating innovative solutions in automation for the arable and horticulture sector. Understanding that the agricultural sector does not exist in a vacuum but affects all parts of our society I have also sought knowledge in regard to economics, psychology, and sociology. So that I may create solutions not only for the agricultural sector but also for the wider world so that we may live in harmony with each other.





#### **MSc Biosystems Engineering**

Orientation/specialisation: Farm technology

Thesis: Determining optimal growth policy for maximising financial gains based on quality indicators for vertical farming.

Using MATLAB I created a financial model that can be used in conjunction with an existing vertical farm model to predict financial results.

### BSc Biosystems Engineering (Agrotechnologie)

Wageningen University & Research, Wageningen

Thesis: Applying smart control to an autonomous potato harvester.

In this thesis I created a proposal for an autonomous potato harvester based on extensive literature research.



### Bootcamp Trainer 2019 – 2020

Wageningen Beasts (Wageningen, the Netherlands)

I was responsible for organizing and giving the bootcamp trainings.

Tutor 2016 – 2019

Vrijzinning Christelijk Lyceum (The Hague, the Netherlands)

I helped students in improving their grades in physics, chemistry, biology, and math.



### **OTHER EXPERIENCE**

Internship: Evaluation climate control systems.

2022 - present

Sep 2021 - present

2018 - 2021

AEM (Maasbree, the Netherlands)

During this internship I will analyse multiple different climate control systems so that an impartial comparison can be made, and possible points of improvement can be highlighted.

Treasurer 2020 - 2021

Wageningen Beasts (Wageningen, the Netherlands)

During the period of 2020-2021 I served as the treasurer of the strength sports association in Wageningen. During this period together with my fellow board members I helped my association through the difficult times due to the corona lockdowns. By doing everything in our power to sustain the cohesion of the association.

### Aline Hazelaar

Date of birth : 14 May 2000

Nationality : Dutch

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LinkedIn : www.linkedin.com/in/aline-hazelaar-231a26182/

Address : Hoge Hexel, Netherlands





### **PERSONAL NOTE**

My personal interests are mainly in the improvement of animal welfare in current production systems. I worked a lot with machine vision and sensor data, as where my master thesis also is about. I am precise and driven in my work. In the future I would like to work within the agricultural sector, especially with machine learning and machine vision.





#### **MSc Biosystems Engineering**

Sep 2021 - present

Wageningen University & Research, Wageningen

Specialisation: Farm Technology

Thesis: Detecting & counting of loser salmon using state-of-the-art machine learning methods.

#### BSc Biosystems Engineering (Agrotechnologie)

2018 - 2021

Wageningen University & Research, Wageningen

Field robot event: With a team of 8 students we worked on a virtual robot and participated in the international event. We won the overall best performance price. Thesis: Influence of density on dry matter measurements on silage with UWB radar (Lely Industries N.V.).



### WORK EXPERIENCE

### **Production employee and accounting assistant**

2017 - present

De Kaasbunker (Daarle, the Netherlands)

Coating and other care of the Twentse Bunkerkaas. Import the entry and exit of cheese into the accounting program and sending invoices.

#### All-round employee on family dairy farm

2015 - present

Hoge Hexel, the Netherlands

Helping with daily tasks, for example milking and feeding. And helping when an extra pair of hands is needed, for example when harvesting grass.



### OTHER EXPERIENCE

### Committees at study association "Heeren XVII"

2019 - present

Wageningen, the Netherlands

Organising multiple activities: the introduction weekend for the new first year students, an abroad excursion week, and a team for the Batavierenrace. Making, selecting and posting of photos of HeerenXVII activities.

### Board member of student pub "de Woeste Hoeve".

2019 – 2022

Wageningen, the Netherlands

Daily manage of the bar. This includes e.g. the beer tapping, cleaning, maintenance of the bar, and contact with other parties.

### **Estelle Becquevort**

: 25 August 1999 Date of birth

Nationality : Belgian

Telephone : +32 (0)4 91 64 33 58

E-mail : estelle.becquevort@gmail.com

Address : Brussels, Belgium





### **PERSONAL NOTE**

As a passionate and ambitious master student, I am looking for an internship opportunity in a research project that aligns with my values and interests while challenging my intellectual capacity. I have a strong scientific background, with a particular passion for chemistry and mathematics. I am particularly interested in electrochemistry and modelling fluid dynamics, and I see technology as a tool to build a sustainable world.



Python, Matlab

Scilab, SuperProDesigner Microsoft Office, Excel

Determined

Organized

**Autonomous** 

Take initiatives

Dynamic

Sociable

**Empathic** 

Multilingual

Great capacity of adaptation & integration

### ----- INTERESTS -----

Electrochemical engineering Fluid dynamics Physical modelling

### ----- HOBBIES -----

Backpacking around the world **Photography** Running, cycling Experienced performer

### **EDUCATION**

#### **MSc Biosystems Engineering**

Wageningen University & Research, Wageningen

Specialisation: Biobased Chemistry and Technology.

Thesis: Modelling Kinetics and Diffusion of CO2/K2CO3 reaction in DAC conditions.

### **BSc Bioscience Engineering**

2018 - 2021

Sep 2021 - present

UCLouvain (Louvain-la-Neuve, Belgium)

Minor: Chemical Engineering.

Passed with honours, completed in French.

### Traineeship in Bioengineering

2020

FruitCollect (Brussels, Belgium)

Carried out research to optimise the start-up's global efficiency.

Autonomously led projects from start to finish.



### **WORK EXPERIENCE**

### **Student assistant in Modelling Dynamic Systems**

2022

Wageningen University & Research, Wageningen

Hired by the WUR to help students with solving dynamic problems in MATLAB.

#### **Mentor in Bioscience Engineering**

UCLouvain (Louvain-la-Neuve, Belgium)

Hired by UCLouvain to offer guidance and support to bachelor students in mathematics, earth sciences, chemistry and Microsoft Excel skills.



### OTHER EXPERIENCE

#### Deputy head of committee against precarity

2020 - 2021

Kap Quart, Kot à Projet (Louvain-la-Neuve, Belgium)

- Engaged in constructive relationships with people in precarious situations.
- Organised events to raise awareness among UCLouvain students.
- Worked with international NPO: ATD Fourth World.

### Leader of engineering project in Nepal

2020 - 2021

IngénieuxSud, UCLouvain

- Class organized by Louvain Cooperation and UCLouvain.
- Identified and reflected on technical issues around terrace farming in Nepal.
- Sought sustainable solutions to the challenges faced by locals.

#### Intern in education department

2018

Up with People

- Organised and managed volunteering projects in USA, Mexico and Europe.
- Created and facilitated educational workshops for international groups.
- Established, managed and maintained relationships with key community.

### Mohammadmehdi Ghojehbeig

Date of birth : 21 September 1983

Nationality: Iranian (Dutch residence permit & work permit: available)

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LinkedIn : www.linkedin.com/in/mohammadmehdi-ghojehbeig

Address : Ede, Netherlands





### **PERSONAL NOTE**

Aside from the different experiences I gained, the interdisciplinary master's program involved me in a variety of projects and courses that helped me develop the confidence to take responsibility for different projects. As a person, patience and accuracy are in my nature. It is my passion to learn and develop skills related to my career, to work hard, and to develop effective communication skills that will benefit both my personal development and my organization's growth.



### **EDUCATION**

#### **MSc Biosystems Engineering**

Sep' 2021 - present

Wageningen University & Research, Wageningen

Orientation/specialisation: Mathematical & Statistical methods

Thesis: Exploration of climate-resilient Eco-Industrial Food Parks (EIFP) through mathematical modelling and optimization. I developed an EIFP, food production system, which focuses on nutrient usage and self-sufficiency. I also tested different configurations to identify the most optimal design to be used for dynamic simulations. This futuristic approach helps design a sustainable EIFP.

Relevant courses: biosystem design, system and control theory, statistics for data scientists, modelling of biobased production system, quantitative analysis, management skills.

#### **MSc Mathematics** 2009 – 2012

Yazd University, Yazd-Iran

Orientation/specialisation: Geometry& Topology

Thesis: Research into Digital Space with the Khalimsky Topology

I examined continuity and connectedness in digital space and showed how abstract topological concepts contribute to linear digitization in digital geometry.

BSc Mathematics 2004 – 2008

University of Sistan& Baluchestan, Zahedan-Iran

Orientation/specialisation: Pure mathematics.

I achieved a broad range of mathematical knowledge which helps me to be involved in cross-disciplinary projects and have deeper understanding to connect the ideas.



### **WORK EXPERIENCE**

### Internship research

2019 - 2020

Farm technology group, Wageningen University (Wageningen, the Netherlands)
I conducted a research to analyse a chicken scratching behaviour through mathematical modelling and examined the model to be used in simulations.

### Mathematics teacher & assistant principal

2016 - 2018

Ministry of education (Sistan& Baluchestan, Iran)

Besides teaching mathematics, leading and supervising more than 100 students in the boarding school helped me experience conveying math knowledge and management at the same time.

### **Operations assistant manager**

2015 - 2016

IPayandan company (Southern Pars project, Bushehr, Iran)

In this position I contributed to managing human resource affairs and activities related to the daily functions of employees which improved my management skills.

Exploring new places

### **Peter Oudshoorn**

Date of birth : 27 February 2000

Nationality : Dutch

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E-mail : peter.oudshoorn@hotmail.nl

LinkedIn : www.linkedin.com/in/peter-oudshoorn-9bb9131bb Address : Snelrewaard, the Netherlands (province of Utrecht)





### **PERSONAL NOTE**

My personal interests are mainly in the automation of current agricultural production systems. With my background in mechatronics, I worked a lot with mechanical, electrical, and programming aspects. In my master, I specialised more in machine vision and programming. I am an enthusiastic and driven worker. At home, my parents own a dairy farm which has my interest but arable farming and its challenges too.





Data analysis Dairy cows

### ----- HOBBIES -----

Skiing

Football

Rugby

Contact with family and friends Helping on the farm at home

### **EDUCATION**

### **MSc Biosystems Engineering**

2021 - present

Wageningen University & Research, Wageningen

Orientation/specialisation: Deep learning and Machine vision

Thesis: Automated lameness detection in dairy herds using an end-to-end approach and available RGB data

**BSc Mechatronics** 2017 – 2021

The Hague University of Applied Sciences, Delft

Orientation/specialisation: Minor Robotics and Vision Design, Company Project: "Rudder feedback in ship controls for luxury sailing yachts" at Smart-Ship, Delft. Internships:

- 1. Designing a modular product with Solidworks at Cellro B.V, Veenendaal. (Sept. 2019 Nov. 2019)
- 2. Optimizing and programming a 3D measuring machine at ATR transmissies, Montfoort. (Nov. 2019- Feb. 2020)



### WORK EXPERIENCE

#### Assistant test engineer

Jun' 2021 -Aug' 2021

Kverneland Group Mechatronics B.V. (Nieuw-Vennep, the Netherlands)

Assisting in the programming of automated tests for terminal functions related to automated steering and section control. During the tests, the end user is simulated.

#### **Employee at agricultural contractor**

2016 - present

2018 – present

Loonbedrijf Stigter (Snelrewaard, the Netherlands)

Agricultural activities with the tractor or working in construction preparation.



### **OTHER EXPERIENCE**

Internship: Designing a simulator for auto steering

Kverneland Group Mechatronics B.V. (Nieuw-Vennep, the Netherlands)

Building a simulator to test the behaviour of a tractor during automated steering in the office.

### Member of youth association "KPJ Boerendag"

Oudewater, the Netherlands

Involved in organising activities and treasurer for a weekend event, concerning 6500 visitors total. A three-day event on a different farm each year and an open day on Sunday as a highlight.

### **Sophie Wildeboer**

Date of birth : 12 October 1999

Nationality : Dutch

: +31 (0)6 - 835 580 71 Telephone E-mail : swildeboer@me.com

: www.linkedin.com/in/sophie-wildeboer-77a690182/ LinkedIn

Address : Utrecht, the Netherlands





### **PERSONAL NOTE**

My personal interests are mainly in the automation of agricultural practices and precision farming. I participated, for instance, with a team of eight students in the "Field Robot Event". A virtual robot had to perform various tasks in a maize field, we won the first price. Furthermore, I enjoy organizing activities which I did, for example, in the Excursion Committee of the study association HXVII. In corporation with companies from our future work field I organised excursion and themeevenings for other students.



Data analysis

Solving puzzles Organizing activities

Sporting

### **EDUCATION**

#### **MSc Biosystems Engineering**

2021 - present

Wageningen University & Research, Wageningen

Specialisation: Information Technology.

Exchange: University of Guelph (Ontario, Canada). Courses in Artificial Intelligence, Precision Agriculture and Weed Management.

Thesis: An experimental study on weed detection with YOLOV7 through transfer learning.

### **BSc Biosystems Engineering (Agrotechnologie)**

2018 - 2021

Wageningen University & Research, Wageningen

Coursework in robotics

Thesis: Ammonia emission from a 'rooting house' for finishing pig.



2020 - present

Albert Heijn (Utrecht, the Netherlands)

Assisting customers and managing the cashier's department.

#### Student assistant

Service desk employee

Feb 2023 - Jun 2023

Wageningen University (Wageningen, the Netherlands)

Assisting during the practical's of the BSc course Building Physics and Climate Engineering and the MSc course, Machine Learning.

2018 - 2023Receptionist

Kampeerterrein Stortemelk (Vlieland, the Netherlands)

Working with the online reservation system, welcoming guests, processing payments and performing administrative tasks (summer job).



### Board member of study association "Heeren XVII"

2018 - 2022

Wageningen, the Netherlands

Being secretary and chair of Heeren XVII. Besides, member of the following committees: Theme and Excursion Committee, Gala Committee, organizing the introduction weekend for the first year students and the committee for participating in the Batavierenrace (run event).

#### Board member students pub "de Woeste Hoeve"

2019 - 2021

Wageningen, the Netherlands

Daily management of the bar and supervising the finances as treasurer.

----- HOBBIES -----

### **Tom Baeten**

Date of birth : 27 July 1996

Nationality : Dutch

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LinkedIn : www.linkedin.com/in/tombaeten96

Address : Wageningen, Netherlands





### **PERSONAL NOTE**

As a Master Student in Biosystems engineering I am accountable, dependable, dedicated, and pay close attention to detail. I am a research-focused individual who excels at information gathering and analytically evaluating of data. I have a strong work ethic, devoted and solution-focused, while operating in an orderly and accurate manner. In addition, I have a diverse range of interests, I am adaptable, open-minded and easily approachable. I would like to work in the agricultural sector, especially with robotics, modelling or product design.





#### **MSc Biosystems Engineering**

2021 - present

Wageningen University & Research, Wageningen

Orientation/specialisation: design and modelling of bio production systems & machine and deep learning

Thesis: Introducing active components in the Chinese solar greenhouse (CSG) model.

### **BSc Mechanical engineering**

2014 - 2020

Avans hogeschool, Breda

Orientation/specialisation: construction sciences, control engineering, energy sciences, Production sciences, research methodologies and business administration. Thesis: Modelling the thermodynamic behaviour of a permanent magnet synchronous motor and battery pack for an electric truck (2019-2020), DAF Trucks NV, Eindhoven, Netherlands.



### **WORK EXPERIENCE**

### Worker at the Technical and facility

2012 - 2022

Drukkerij E.M. de Jong, Baarle Nassau, The Netherlands

My responsibilities as an employee for the technical services were maintenance and solving mechanical and electrical breakdowns of the printing presses. The activities for the facility services were very diverse, from placing desks to placing safety equipment in the factory.



### **OTHER EXPERIENCE**

Internship: Metal 3d printing in the automotive industry

2017 - 2018

VDL steelweld Breda, the Netherlands

During my internship, I investigated the applications of metal printing in the automobile industry. I designed several parts that are comparable to those used in car manufacturing and tested them in a production scenario to study the effects of their usage over time.

Contact with family and friends

**Driving Motorcycle** 

### **Yvet Renkema**

Date of birth : 12th of April 2000

Nationality : Dutch

Telephone : +31 (0)6 – 251 843 63 E-mail : uhurugirl@gmail.com

LinkedIn : www.linkedin.com/in/yvet-renkema/

Address : Schiedam, The Netherlands





### **PERSONAL NOTE**

During my studies, I focussed on supply chain management, decision science and data science. My perseverance gets sparked by the creative aspects of programming and I would prefer to work in the agriculture or horticulture sector. In the near future, I see myself working in a team that optimises agricultural supply chains based on big data.



### ----- HOBBIES -----

Decision science

Running through the woods Being outdoors, camping Chocolate-related baking Discovering new kinds of tea

### **EDUCATION**

#### **MSc Biosystems Engineering**

2021 – present

Wageningen University & Research, Wageningen

Orientation: Operations, research & logistics and data science

Thesis: Optimizing robust decision-making for the electricity market by using probabilistic forecasting of power output of PV systems

### **BSc Biosystems Engineering (Agrotechnologie)**

2018 - 2021

Cum Laude

Wageningen University & Research, Wageningen

Orientation: Supply chain management and decision science

Thesis: Lots to exchange for better soil quality.

Designing an optimization model to facilitate temporary land swapping between arable and dairy farmers to enhance soil quality.



### **WORK EXPERIENCE**

#### Teaching assistent

2020 - present

Wageningen University (Wageningen, the Netherlands)

For the chair group Operations Research & Logistics, I have assisted with the practicals for several courses.

### Member of the program committee (PC)

2019 – present

Wageningen University (Wageningen, the Netherlands)

At the PC of the BSc Agrotechnology and the MSc Biosystems Engineering, I attend monthly meetings to discuss subjects like the layout of the studies or student and teacher well-being.

#### Petting zoo caretaker

2019 - 2021

Stadsboerderij Wageningen (Wageningen, the Netherlands)

On weekends I volunteered at the Stadsboerderij where I cared for the animals, and ensured satisfaction of visitors.



### **Chair Veluweloop**

2021 - 2022

National park 'The Veluwe' (the Netherlands)

As the chairwoman of the 39th edition of this relay running race, I kept the organization on track and maintained contact with external parties such as the mayor and the university.

Graduated: January 2024

### Ellis van de Laak

Date of birth : 7 October 2000

Nationality : Dutch

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LinkedIn : www.linkedin.com/in/ellisvdlaak Address : Wageningen, the Netherlands





### **PERSONAL NOTE**

I am an enthusiastic, enterprised and driven student with interests in (remote) sensing techniques, data science, and analyzing and optimizing processes of agricultural production systems. I'd like to bottom and creatively solve complex, multidisciplinary issues. I grew up on a roses and lilacs nursery in Limburg, which triggered my interest in the agricultural sector. My studies and my environment provide me a broad look on the Dutch agriculture, both on the technical as societal aspect. Next to my sudies, I developed my organizational and communicational skills in several committees, a board year and educational side-jobs.



Organizational skills Project management Debating

Drivers Licence (B)
Cambridge English Certificate in
Advanced English (C1)

### ----- INTERESTS -----

Biosystems analysis
Sensor technology
Remote sensing
Data analysis
Biosystem design
Precision farming
Artificial intelligence

Agricultural innovation

### ----- HOBBIES -----

Skiing Sports

Contact with family and friends

25



### **MSc Biosystems Engineering**

2021 – present

Wageningen University & Research, Wageningen

(GPA 9.3)

Orientation: Remote Sensing, Farm Technology and Information Technology

Thesis: Detection of Potato Virus Y in seed potatoes using UAV-based multi-sensor

data based on machine learning techniques

Internship: Ministry of Agriculture, Nature and Food Quality - Department of

Strategy, Knowledge and Innovation

#### **BSc Molecular Life Sciences**

2018 - 2021

Wageningen University & Research, Wageningen

(GPA 9.4)

Orientation: Biochemistry

Thesis: Understanding the sequence features of Intrinsically Disordered Regions in

Auxin Response Factors with random forest classifiers – awarded 9.5



### WORK EXPERIENCE

### Student assistant in several BSc and MSc courses

2020 - present

Wageningen University (Wageningen, the Netherlands)

As a student assistant in the courses Machine Learning, Greenhouse Technology, Biosystems Design, Programming in Python, Decision Science and Introduction to Molecular Life Sciences I assisted students during practicals and group work. This thought me effective communication and organizational skills.

### Education material development and group tutor

2021 – present

VKPS Studiebegeleiding (Boxmeer, the Netherlands)

As a group tutor and exam training developer for exact sciences, I learned how to transfer my knowledge on different levels. I've created an enrichment program for the primary school focusing on primary food production.

#### Farm assistant

2012 – present

2019 - 2020

Lakei Boomkwekerijen (Lottum, the Netherlands)

Responsible for environmental certification and helping out with other tasks both in the office as in the field.



### OTHER EXPERIENCE

Master Committee member of study association Heeren XVII 2022 – present

Board member (chair and secretary), tournament committee 2019 – present and advisory committee of students sports organization

Parent day committee of study association Alchimica

Youth trainer at sports association S.V. Lottum 2015–2018

Graduated: January 2024

### Jack de Winter

Date of birth : 18 November 1999

Nationality : Dutch

Telephone : +31 (0)6 – 124 410 42 E-mail : dewinterjack@gmail.com

LinkedIn : www.linkedin.com/in/jack-de-winter-778a1010a/

Address : Rozenburg 23 2394AX Hazerswoude Rijndijk, Netherlands





### **PERSONAL NOTE**

Born in the city but with my heart in the countryside. Since I ended up on a dairy farm at the age of 12, my passion for the agricultural sector has grown more and more. The shared interest in the agricultural sector and technology led me to study agrotechnology and biosystems engineering. I like to make the connection between theory and practice, I also have a healthy dose of enthusiasm, can think critically, and I am not afraid of a good conversation. I am also very involved at the dairy farm where I work all the free hours I have. Although I don't call it work, I call it a hobby.

# Dutch English ---- LANGUAGES ---- ••••• •••••

### ----- SKILLS -----

Data analysis

Microsoft Office

Critical thinking

**Enthusiasm** 

Linking theory and

practice

Project management

Communication

Drivers Licence (AM, B, T)

### ----- INTERESTS -----

RFS; Cattle breeding study

club

Volunteer; Promotion commission & sponsor chef

----- HOBBIES -----

Milking cows Sailing Hiking

#### ----- CERTIFICATES -----

Goethe-Zertifikat B1 (German) Diplôme d'études en langue française A2 (French)

### **EDUCATION**

#### **MSc Biosystems Engineering**

Sep 2021 - present

Wageningen University & Research, Wageningen Orientation/specialisation: Farm Technology

Thesis: "Udder health patterns from dairy cows milked by milking robots" (AHV,

Extra courses: Animal nutrition & physiology, Feed formulation, Agrarian history.

### **BSc Biosystems Engineering (Agrotechnologie)**

2018 – 2021

Wageningen University & Research, Wageningen

Orientation/specialisation: Farm sciences and economics.

Thesis: "Modelling and validating respiratory heat loss in dairy cows".



### WORK EXPERIENCE

#### All-round dairy farm employee

2012 - present

Hoeve Poelzicht (Rijpwetering, the Netherlands)

- Responsible for a dairy farm with 60 cows during the holidays.
- Involved at different tasks like feed management and breeding.

#### All-round employee

2018 – present

*Luiten B.V. (Zoetermeer, the Netherlands)* 

- Manager and contact person from mechanics and cleaners during maintenance and renovation work, where hygiene is very important.
- Work preparation from maintenance and renovation work, and operator.

#### **Student assistant Wageningen Livestock Research**

2021 - 2022

Wageningen University (Wageningen, the Netherlands)

- Helped with a study into heat stress in dairy cows in the respiration chambers of Wageningen Livestock Research.
- Adjustment made for the mask used to measure the outgoing air from the cow, which was later implemented during the research.

#### Farm employee

May 2018 – Jun' 2018

Pickstock Telford Ltd. (Telford, United Kingdom)

Worked at a beef farm with 1200 cows, where I helped with all daily activities.

# OTHER EXPERIENCE

#### Editor in chief HaiTech - HeerenXVII

2022 - present

Responsible for the magazine, the "HaiTech", which appears 5 times a year and is made for and by agrotechnologists who are affiliated with study association Heeren XVII.

**Graduated:** February 2024

### **Dane Birkland**

: 26 September 1995 Date of birth

Nationality : American

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: https://www.linkedin.com/in/dane-birkeland-914a2b153/ LinkedIn

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### **PERSONAL NOTE**

After working for 4 years in different fields in the USA, I decided it was time to pursue my Masters as well as engage with new cultures. This desire and a personal passion for food production brought me to Wageningen University. My ambition is to develop digital tools for sustainable agriculture and support the transition towards more robust food production systems. Preferred start date from October 2023 onwards.



**Machine Learning** 

Deep Learning

Software Design

**Bioprocess Design** 

**Data Analysis** 

**Project Development** 

### ----- HOBBIES -----

Chess

Rugby

Reading – fiction

History

At-home Cooking

Cinema

Travelling

**Art Museums** 

Geography

Time with Friends and Family



### **EDUCATION**

#### **MSc Biosystems Engineering**

2022 - present

Wageningen University & Research, Wageningen

Orientation/specialization: Farm Technology and Information Technology.

Thesis: Data-driven understanding of trading behavior in the intraday electricity market in the Netherlands.

#### **BA Applied Mathematics and Statistics**

2014 - 2018

Carleton College, Northfield USA

Orientation/specialization: Comp. Sci., Statistics, Economics, Mathematics.



### WORK EXPERIENCE

#### **Project Analyst - Part time**

2022 - present

Perceptive Power Infrastructure (Kansas City, KS USA)

- Dashboard creation illustrating energy needs of prospective client;
- Solar generation modeling and integration with client demand profile;
- Financial modelling of energy project from client saving and investor return point-of-views

#### Lead Data Engineer – Full time

2019 - 2021

Logistics, Capital and Strategy (Arlington, VA USA)

- Provided data engineering and financial analysis support across 8 private equity buyside deals within the logistics sector;
- Generated route-by-route level dashboards for trucking company running over 2000 long-haul trucks over all 50 US states.

### **IT Desktop and Event Support Specialist**

2018 - 2019

San Diego Padres - MLB (San Diego, CA USA)

- Assisted new sales members with integration into ERP system;
- Daily support of all phone, desktop, and auxiliary technology items within the ballpark;
- Hardware support of laptops and desktops.

### Graduated: February 2024

### Wilco Veenland

: 24 December 1999 Date of birth

Nationality : Dutch

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### **PERSONAL NOTE**

My interests lie mainly in agriculture, specifically dairy, as I have grown up on a dairy farm in Groningen, where I still work most weekends. Besides studying during the week, I dive into innovations for the farm. Other interests are novelties in sustainability and efficiency. In my future career, I would like to contribute on further developing and improving Dutch agriculture.

### ----- LANGUAGES -----

Native Dutch English C1 German B2

#### ----- SKILLS -----

Python **MATLAB** Java

Data analysis

Project management

Accounting

Drivers Licence (B+T)

### ----- INTERESTS -----

Dairy farming Sustainability

**Novelties** Efficiency

### ----- HOBBIES -----

Reading

Practical work at dairy farm Watching documentaries

### **EDUCATION**

#### **MSc Biosystems Engineering**

2022 - present

Wageningen University & Research, Wageningen Orientation/specialisation: Farm Technology.

Thesis: Modelling bovine locomotion by fitting an inverted pendulum on point markers.

### **BSc Biosystems Engineering (Agrotechnologie)**

2018 - 2022

Wageningen University & Research, Wageningen Orientation/specialisation: Animal farming

Thesis: Evaluation of Design Scenarios for Regenerative Farming in the Peat

Meadow Area the Rondehoep. Publication: "Evaluating GHG emissions and profitability of innovative grassland-

based farming systems on a Dutch peat meadow" (The 29th General Meeting of the European Grassland Federation, 2022).

# **WORK EXPERIENCE**

### All-round employee dairy farm

2012 - present

Mts. Veenland (Bedum, the Netherlands)

Performing all possible tasks:

tractor driving, maintenance to machinery, animal husbandry, paperwork, etc.

## Board member of student association "Ichthus

2021 - 2022

Wageningen"

*Ichthus (Wageningen, the Netherlands)* Board chair person.



### **OTHER EXPERIENCE**

Committees at student association "Ichthus Wagen-2018 – present

*Ichthus (Wageningen, the Netherlands)* 

Organising activities during AID (introduction days of WUR) maintaining website and organising drinks.

Voluntary work at "Stichting Precent" and "Change-

2018 - present

makers"

Wageningen, the Netherlands

**Internship: Dairy farm Germany** 

Jul 2016

Germany

Graduated: February 2024

### Jose Montenegro Mackliff

Date of birth : 6 August 1997 Nationality : Ecuadorian

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E-mail : ftjlmm@gmail.com

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Address : Haarweg 333 C37, Wageningen 6709RZ





### **PERSONAL NOTE**

Innovation, technology, and new projects have always been my passion. During my first engineering year, I decided to specialize in agriculture systems where I encountered the Wageningen University for my master's degree. My ambition is to automate current production systems and enhance their resources usage. I'm resilient with high adaptability. Preferred start date for a possible internship from October 2023 onwards.



### ----- INTERESTS -----

**Machine Learning Machine Vision Data Analysis** 

**Bioprocess Design** 

Agriculture/Aquaculture

Automation/Instrumentation

**Agriculture Economics** 

**NDVI** Maps

Dynamics and control systems

**Internet of Things** 

Hydroponics/Horticulture

----- HOBBIES -----

Gym

IoT

Reading – Scientific

Travelling

Time with family and friends

### **EDUCATION**

#### **MSc Biosystems Engineering**

2022 - present

Wageningen University & Research, Wageningen

Orientation/specialisation: Farm Technology and Information Technology.

#### **B.S.E Electronic Engineer**

2018 - 2021

Universidad Católica de Santiago de Guayaguil

Orientation/specialisation: Automation and Control.

Thesis: Design and Implementation of a dosing machine by peristaltic pumps controlled with pulse width modulation.



### WORK EXPERIENCE

#### **Sales Representative**

08/2021 - 12/2021

Casa del Cable (Guayaquil, Ecuador)

- Manage list of clients based on their needs and projects (Networking, safety control, structured cabling and energy quality equipment).
- Basic training to clients.

#### **Internship: Technician Supervisor**

05/2018 - 08/2018

F&J Representaciones (Guayaquil, Ecuador)

- Check electric control panel connections and equipment.
- Update AutoCAD diagrams.

#### **Internship: Development team and Maintenance**

01/2018 - 05/2018

Agroficial S.A (Guayaguil, Ecuador)

- Preventive and corrective maintenance plan.
- Led 5s methodologies with technicians.
- Proposal development for new automated industrial line (time efficiency and lower product waste).



### OTHER EXPERIENCE

#### **Drone operator and GIS worker**

2019 - 2019

AgroXplor (Guayaquil, Ecuador)

- Precision farming (normalized difference vegetation index maps and soil nutrition samples).
- Drone set up and planning.

Graduated: March 2024

### **Christine Mark**

: 5 April 1999 Date of birth Nationality : Dutch

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Address : Wageningen, NL





### **PERSONAL NOTE**

My personal interests are mainly in the vertical farming climate systems. I worked a lot with designing and modelling climate system, as this is what my bachelor and master thesis were about. In terms of working, I am a precise and driven individual. I enjoy taking the lead and I am very organized. In the future I like to work in the vertical farming sector, especially with designing, modelling and involving teamwork.



Drivers Licence (B)

### ----- INTERESTS -----

Vertical farming Climate control Design

### ----- HOBBIES -----

Cycling Bouldering Gaming

Contact with friends



#### **MSc Biosystems Engineering**

2021 - present

2017 - 2021

Wageningen University & Research, Wageningen

Orientation/specialisation: Climate control and modelling farming systems

Thesis: 'Developing a vertical farming climate model using spatial gradients.' I expanded a vertical farm climate model using spatial gradients to create an easily modifiable climate model to investigate the effect of climate gradient on crop yield.

### **BSc Biosystems Engineering (Agrotechnologie)**

Wageningen University & Research, Wageningen

Orientation/specialisation: Growth of horticulture crops

Thesis: 'Design of a vertical farm in the Netherlands'. I designed a container vertical farm and used a model to analyse if it would work well.



## WORK EXPERIENCE

### **Employee OnsZaden**

2021 - 2022

OnsZaden (Wageningen, the Netherlands)

My main function was to fill and collect the seed bags for the orders. Thereby, I was also responsible for customer service, social marketing, and updating the website when needed.

### Student assistant course Introduction to **Python**

2019

Wageningen University (Wageningen, the Netherlands) I assisted students in writing their code and debugging.



#### **President Lustrum committee**

2022 - 2023

WSG Paragon (Wageningen, The Netherlands)

I set up a committee organizing large events in a short time. Thereby, was I also the main editor, writer, and designer of the almanac.

#### Board member of student association "WSG Paragon"

2019 - 2021

WSG Paragon (Wageningen, the Netherlands)

I was the secretary and the president. In my secretary years I learned how to manage meetings and notes. I managed the website, e-mails, and the new members. As president I started new committees, contacted sponsors, and learned how to resolve conflicts with within the association.

Graduated: March 2024

### Simon Bosselaar

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Nationality : Dutch

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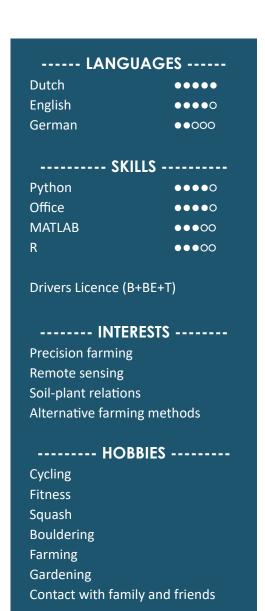
LinkedIn : www.linkedin.com/in/simon-bosselaar Address : Haarweg 199-208 6709 RK Wageningen





### **PERSONAL NOTE**

Interested in optimizing current production systems or alternative production systems. Constantly searching for new challenges, to develop myself and the world for a sustainable future. I am critical and committed but also social and considerate to others.





#### **MSc Biosystems Engineering**

2022 - present

Wageningen University & Research, Wageningen

Orientation/specialisation: Farm technology and remote sensing.

Thesis: Automated analysis of drone time-series in phenotyping applications (Evaluate the time-series analysis functions for their potential to identify treatment effects for a selection of phenotyping experiments in potatoes).

### **BSc Biosystems Engineering (Agrotechnologie)**

2017 - 2021

Wageningen University & Research, Wageningen

Minor: Big Data, Conservation Agriculture, Economics of Agribusiness, Accounting, Financial Management in Agriculture.

Thesis: Assessing health of pre-weaned calves using video observations (In this thesis I did research to the possibility of scoring health parameters of pre-weaned calves using video observations).



### **WORK EXPERIENCE**

### Agricultural employee

2011 – present

Mixed farm and small camping Roos en Doorn (Aagtekerke, the Netherlands)
All sorts of farmwork, harvesting crops, milking and caretaking of cows, taking camping reservations, landscaping of the camping, gardening.

### Allround employee garden centre

2019 – present

Zeelandplant (Grijpskerke, the Netherlands)

Helping customers, caretaking of plants including watering, pruning, repotting and feeding, supervising young employees.

#### Kitchen employee

2014 - 2018

2023

Hotel Duinheuvel and Brasserie Domburg (Domburg, the Netherlands)

Activities such as preparing dishes, preparing mise-en-place, washing dishes.



### **OTHER EXPERIENCE**

#### Consultancy project: Perspectives of Dutch organic potato farmers

WUR (Wageningen, the Netherlands)

Consultancy project with a multi-disciplinary team of 6 students. The goal of this project was to investigate the perspectives of Dutch organic potato farmers regarding climate change. Within this project structured in-depth interviews with farmers were conducted together with an analysis of current policies and landscape.

### Gijs Rutgrink

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Nationality : Dutch

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Address : Burgerbrug (NH)





### **PERSONAL NOTE**

My personal interests are crop production and the function of the soil in arable farming and horticulture. Furthermore, I am interested in the agricultural sector as a whole. During my bachelor's minor, I followed courses about crop production and crop growth modelling. During both my bachelor's and master, I followed courses from Farm Technology Group (FTE). With this, I gained skills in machine learning, Python, and MATLAB programming.



----- HOBBIES -----

**Precision Farming** 

Crop production

Wakeboarding

**Snowboarding** 

Running

### **EDUCATION**

#### **MSc Biosystems Engineering**

Feb 2022 - present

Wageningen University & Research, Wageningen

Orientation: Farm Technology group

I am following the thesis track of FTE meaning farm technology related courses such as machine learning, precision farming and greenhouse technology. Besides that, I am following some plant and farm management related courses.

### **BSc Biosystems Engineering (Agrotechnologie)**

2018 - Feb 2022

Wageningen University & Research, Wageningen

Minor: Concepts in crop production

Thesis: Improving Lettuce yield by improving plant dimensions

During my bachelor is did a minor in crop production and followed my thesis again at the farm technology group.



### WORK EXPERIENCE

2012 - present

Fa Th.J. Rutgrink en Zn (Petten, the Netherlands)

I have been working at my parent flower bulb farm for over a decade. The job is very diverse and carries many responsibilities. I have worked as a normal employee in the first years but now the jobs vary from tractor driver to managing the packaging and sorting lines in the barn.



### OTHER EXPERIENCE

Master Committee member of study association "Heeren XVII" 2021 – present Wageningen, the Netherlands

The Master Committee is a committee from the study association of Heeren XVII, which is the study association of the bachelor Agrotechnology and the master Biosystems Engineering. The committee organises fun and interesting activities for the master student of the association. From Career Evenings to integration BBQ's.

### Koen van Dijck

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Nationality : Dutch

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Address : Bergstraat 5a, Wageningen



2020 - present



### **PERSONAL NOTE**

During my life I have developed a passion for agriculture, this originated very young as I had the possibility to help at the horse breeding farm of my uncle. This has driven me to study courses in the field of agriculture. During my bachelor and master I found out that the interaction of plants with technology was something that intrigued me and was something I wanted to do more with.



### **EDUCATION**

MSc Biosystems Engineering 2022 – present

Wageningen University & Research, Wageningen

Orientation: Farm technology.

Thesis: Optimising feed managemnt in dairy cows

BSc Biosystems Engineering (Agrotechnologie) 2018 – 2022

Wageningen University & Research, Wageningen

Minor: Concepts in crop production

Thesis: Design and optimization of water supply networks considering brackish water sources with varying salinity and desalination as possible treatment option.



### WORK EXPERIENCE

#### All-round infra employee

Derikx infra B.V. (Horn, the Netherlands)

This job gave me to learn the practical side in the field of infrastructure, as the job mainly consisted in making roads and pavement. This job gave me the chance to get my trailer and tractor licences.

Catering employee 2016 – 2020

Het Munstercafé (Roermond, the Netherlands)

At this job I started washing dishes, after that I learned to be a bartender, further along the line I was taught how to be a friendly waiter. This led to me being able to work in a lot of different positions, this has learned me how to be flexible.

**Carwasher** 2014 – 2016

Smeets Autoschadeherstel B.V. (Haelen, the Netherlands)



### **OTHER EXPERIENCE**

Committee member mastercommittee Heeren17 2020 – present

Wageningen, the Netherlands

**Committee member BinEx (Excursion committee) Heeren17** 2019 – 2021

Wageningen, the Netherlands

Committee chair Whac (activities committee) Woeste hoeve 2019 – present

Wageningen, the Netherlands

### STUDY PROGRAMME BSc AGROTECHNOLOGY

The study programme Biosystems Engineering consists of a bachelor programme (BSc) of three years (180 credits) and a master programme (MSc) of two years (120 credits). One study year corresponds to 60 credits. At the end of the BSc the student gets the title Bachelor of Science (BSc). After that there is a possibility to continue with the MSc Biosystems Engineering. After completing the MSc study programme the student gets the title Master of Science. The BSc and MSc titles are internationally known and indicate that the student finished a scientific study.

### BSc AGROTECHNOLOGY (IN DUTCH: BSc AGROTECHNOLOGIE)

The BSc Agrotechnology is unique in the Netherlands. The program is unique because it integrates knowledge of technology and living (higher) organisms through a system approach, taking into account the need for sustainable production of food, non-food and raw materials. An important characteristic of the program is the focus on design and technology for an unstructured, highly variable environment that is difficult to control. The goal of the bachelor programme is providing understanding of the basic disciplines of Biosystems Engineering and the awareness of a multidisciplinary approach. The three years of the bachelor have different functions in the education.

#### **OVERVIEW OF BACHELOR PROGRAMME**

COMPONENT	SIZE (credits)
Compulsory courses	114
Restricted optionals	12
Bachelor thesis	24
Free choice	30
Total Bachelor	180

Important learning purposes of the study are:

#### DOMAIN-SPECIFIC KNOWLEDGE AND UNDERSTANDING

- Understand and fathom through a systematic approach the technology needed for the production of food, non-food and raw materials;
- To understand the underlying biology of an agro-production, with an emphasis on the factors that influence the growth and can be controlled through technology;
- To understand the interaction and the role of various stakeholders in the agricultural production chain and society;
- To adjust the relevant knowledge of mathematics, physics, chemistry and biology to biosystems engineering related problems;
- To apply engineering principles and specific agro-technology related methods to biosystems engineering related problems;

#### **SPECIFIC ACADEMIC SKILLS**

- To apply the different steps of a scientific research or design process of a project to from setting up the project plan till carrying out the research or to make a design;
- Collecting and interpreted biosystems engineering related data with the purpose of observing, monitoring and managing of agricultural production systems;

#### **DOMAIN-SPECIFIC SKILLS**

- To apply different programming methodologies for measuring, modeling, system analysis, mathematics and statistics;
- To design and evaluate technology for an agricultural production system and in relation to different conditions through a methodic way;

#### **ACADEMIC SKILLS**

- Communicate both in speaking and in writing with regard to ideas, problems, solutions as a result
  of an research or a project with both specialists and non-specialists in Dutch and English where
  necessary;
- Be able to work in a team;
- Make an assessment on social needs and constraints in relation to biosystems engineering;
- To collect information in the field of agro-technology and assess the value of this information;
- To design and plan a private learning path with the main goal of learning your whole life.

### STUDY PROGRAMME BSc AGROTECHNOLOGY

### FIRST YEAR (BSc-1)

The first year of the study is mainly introductory and contains a wide range of subjects. All courses of the BSc-1 are compulsory; an overview of the courses is given below. The students get acquainted with different disciplines and different types of problems are presented. Skills as Oral presenting and Information literacy are also integrated in different courses.

#### **OVERVIEW OF BSc-1 COURSES**

BIOSYSTEMS ENGINEERING (6 credits)

Introduction to biosystems engineering

PHYSICS (6 credits)

Introductory physics

MATHEMATICS / IT (15 credits)

Statistics

Physical chemistry

Mathematics

Organic chemistry

ENGINEERING (15 credits)

Engineering problem solving

ECONOMY AND SOCIETY (12 credits)

Sustainable agricultural transitions

Process engineering Introduction to business economics, management CAD and mechanics and marketing

### SECOND AND THIRD YEAR (BSc-2 AND BSc-3)

The second and third year offer a more comprehensive programme. In this year the students get more disciplinary knowledge. An overview of the compulsory courses of the BSc-2 and the BSc-3 year is given in below. There is also the possibility for free choice, next to the compulsory courses.

#### **OVERVIEW OF COMPULSARY COURSES OF BSc-2 AND BSc-3**

TECHNOLOGY (24 credits) RESEARCH SKILLS (6 credits)

Physical transport phenomena Research methods biosystems engineering

Modelling dynamic systems

Control engineering BIOLOGY (12 credits, choice out of:)

Sensing and perception Plant sciences
Building physics and climate engineering Animal sciences

DESIGN (6 credits)

Integrated pest management

Microbiology and biochemistry

Engineering design Soil-plant relations

MATHEMATICS / IT (18 credits)

Decision science

BACHELOR THESIS (24 credits)

Bachelor thesis agrotechnology

Programming in Python

Data analysis for biosystems engineering FREE CHOICE (30 credits)

Free choice or Minor

#### **BACHELOR THESIS**

A four month thesis project marks the end of the bachelor programme. Bachelor thesis projects are supported by the following Chair groups: Farm Technology, Biobased Chemistry and Technology, Information Technology, Operations Research and Logistics, and Environmental Technology. Thesis projects often have a multi-disciplinary nature, combining plant or animal sciences with technical solution directions in view of requirements set by society or industry. A multi-disciplinary approach is sometimes further enhanced when a thesis project is supervised by staff from two Chair Groups.

### **ELECTIVES OR MINOR**

The students have 30 credits of electives to broaden their knowledge in a field relevant to their study programme. They can do a minor either at Wageningen University or another Dutch university, or at a university abroad. Alternatively, students can choose a set of elective courses. Their choice should contribute to the programme learning outcomes and needs approval from the study adviser and the Examining Board. For instance, if students are looking for more in-depth knowledge on economics, they can choose the minor

### STUDY PROGRAMME MSc BIOSYSTEMS ENGINEERING

The MSc Biosystems Engineering is a tailor made thesis oriented study programme. The whole programme is taught in English and takes two years. The learning purposes are:

#### DOMAIN-SPECIFIC KNOWLEDGE AND UNDERSTANDING

- To know the various engineering aspects of agro production systems;
- State-of-the-art knowledge to understand and apply at least one of the sub-domains of the study for the Master's thesis;
- Be able to apply the relevant knowledge and methods of engineering in general and agricultural technology especially in domain related cases;
- Capability of making a realistic model of an agricultural production system and how it interacts with the environment;

#### SPECIFIC ACADEMIC SKILLS

- Capability of making a research plan in the field of biosystems engineering and critically reflect on the different stages of research or design;
- Capability of performing a research plan in the field of biosystems engineering adequately with the use of appropriate methods and techniques for collecting and interpreting the data;

#### **DOMAIN-SPECIFIC SKILLS**

 Capability of designing and evaluating innovative technology and systems for agricultural production in a structured way through the analysis of the system and stakeholders through the integration of knowledge, calculations, models and simulations;

#### **ACADEMIC SKILLS**

- Communicating in writing and speaking in the field of ideas, problems, solutions as a result of an research or a project with both specialists and non-specialists in English;
- Work in a multidisciplinary and / or multicultural team on a research or design project relevant to the domain;
- Make an assessment on social needs and constraints in relation to biosystems engineering;
- To collect information in the field of agro-technology and assess the value of this information;
- Design and plans a private learning path, based on a continuous reflection on gathering knowledge on new topics relevant to the agricultural technology and improve skills, attitude and performance.

### **OVERVIEW OF MSC PROGRAMME**

COMPONENT	SIZE (credits)
Compulsory Biosystems Engineering courses	18
Thesis preparatory courses	12
Academic master cluster	12
Internship	24
Thesis	36
Electives for deepening or broadening	18
Total Master	120

The total compulsory part of the MSc study comprises 102 credits. The thesis and internship together are 60 credits and other compulsory parts take 42 credits.

#### **COURSES**

In the MSc programme three courses are compulsory for all students. In the course Modelling biobased production systems the student gets more profound knowledge on biosystems engineering with an emphasis on modelling. The course Biosystems design is a continuation of the course Engineering design in the BSc. In this course the students learn how to design the technology for a complex biosystem. In the course Quantitative analysis of innovative biosystems the students learn to quantitatively analyse an innovative or new biosystem, taking into account that for these systems in most cases a limited amount of specific and quantitative information is available.

### STUDY PROGRAMME MSc BIOSYSTEMS ENGINEERING

The students have to do two advanced courses for thesis preparation. The specific courses the student has to do, depend on the thesis. The remaining 18 credits are for broadening or deepening their knowledge. The 18 credits can also be used to increase the duration of the thesis or the internship. The electives are chosen in consultation with the study adviser and can be used to go more in depth in one of the thesis tracks or to make the most out of the broad field of MBE by choosing a wide range of courses. The total programme must be coherent and is approved by the examining board.

#### **ACADEMIC MASTER CLUSTER**

There are three different ways for the career preparation in the academic master cluster.

- In the 9 credits ECTS Academic Consultancy Training the students learn in a multi-disciplinary and multicultural setting to execute a consultancy assignment on academic level. An important part of the course is that the students work on further development of their personal skills. The consultancy assignments originate from 'real-life' and require the input from different disciplines. With an addition of 3 credits from a wide range of modules the student will be prepared.
- In the entrepreneurial Academic Consultancy Training, theory and practice will be combined in interactive and thought-provoking education. The programme provides the opportunity to increase collaboration with entrepreneurial minded stakeholders in and outside the university. ACT and eACT are done with students from different programmes in preparation for the divers work field they come to work in. This contributes to their skills as intermediary in their future work.
- The course Research Master Cluster: Proposal Writing specifically is to acquire and improve students' professional skills in writing and defending a scientific research proposal. The student will conceive a realistic scientific idea and develop this into an attractive grant proposal of high quality that can be defended before a jury of experts and peers.

#### **INTERNSHIP**

The four month internship is an important part of the MSc in which the student can apply its obtained knowledge in a work environment that is similar to the professional practice. During the internship, many professional skills are developed like insight in functioning of another organisation, adaption capacity, independence, and time management. Together many learning outcomes are covered by the internship. It is an excellent way to prepare the student for the labour market. When the internship is done abroad a student also learns how to deal with other cultures and he or she can learn or improve a foreign language. A large number of Biosystems Engineering students are doing their internship abroad.

#### **THESIS**

All students have to do a 6 month thesis which is the culminate point of the study. They have to select one of the following different specialization:

- Biobased Chemistry and Technology (BCT)
- Environmental Technology (ETE)
- Farm technology (FTE)
- Geo-information Science and Remote Sensing (GRS)
- Information technology (INF)
- Operations research and logistics (ORL)
- Mathematical and Statistical Methods (MAT)

The thesis consists of doing independently research or a part of a research in which the knowledge and the skills gained in the BSc study, the MSc courses and the academic master cluster are being applied.

The objective of a thesis is doing scientific research in all its faces and aspects; these are:

- Searching, analyzing and evaluating of the available literature and other information in relation to the problem.
- Planning of lab experiments and / or steps to develop and test a mathematical model.
- Individually doing lab experiments and / or developing and testing mathematical models.
- Analysing and evaluating own research results, including the critical comparison with literature and results of thirds









