

Research & Teaching Assistant (PhD Candidate) in Biotech Data Science – Ghent University Global Campus, Korea

Ghent University Global Campus

Ghent University is a pluralistic university open to all, regardless of ideological, political, cultural, or social background. Our credo is 'Dare to Think'. As a top 100 university with more than 49,000 students and 15,000 staff members, we are one of the largest universities in the Dutch language area, located in Flanders, Belgium. Our 11 faculties offer more than 200 courses and conduct in-depth research within a wide range of scientific domains. Several of our research groups, centers, and institutes are renowned worldwide, in disciplines such as biotechnology, aquaculture, microelectronics, history, ... In 2017, Ghent University celebrated its 200th anniversary. Over the past 200 years, our university has seen many eminent scientists, ministers, and even Nobel Prize winners among its staff and alumni.

Ghent University Global Campus (GUGC) is the first European university in Songdo, South Korea, offering Bachelor of Science programmes in Molecular Biotechnology, Environmental Technology, and Food Technology. The main research areas at GUGC are plant biotechnology, biomedical technology, biotech data science, food technology, and environmental technology.

Please visit the home page of Ghent University (<http://www.ugent.be/en>) and Ghent University Global Campus (<http://ghent.ac.kr> | <http://www.ugent.be/globalcampus/en>) to learn more about our organizations.

Center for Biosystems and Biotech Data Science (KR01)

The mission of the Center for Biosystems and Biotech Data Science, which is located at the Global Campus of Ghent University in Korea, is to pursue the development of novel mathematical and computational approaches for modeling of biosystems and biotech data sets. A core technology leveraged by researchers at the center is deep machine learning, targeting the development of innovative concepts, methodologies, and tools in both the area of molecular biology and the field of computer vision. Furthermore, the Center for Biosystems and Biotech Data Science, which has a headcount of three professors and ten PhD candidates, is responsible for organizing nine courses at Ghent University Global Campus (for a total of 65 ECTS), ranging from Informatics to Bioinformatics and Probability & Statistics.

Current research lines with a strong focus on machine learning are:

- Trustworthy and interpretable AI with uncertainty quantification
- Characterization of sub-visible particles in biopharmaceuticals
- Deep learning and sensor technologies for fusion-based object detection and classification

- Deep learning for biological sequence analysis (e.g., generative AI for splice site modeling)
- Improving reliability and generalization of deep neural networks
- Neural rendering for real-time organ reconstruction
- Surgical video analysis

[Internet Technology and Data Science Lab \(TW06\)](#)

The Internet Technology and Data Science Lab (IDLab) is a core research group of imec with research activities embedded in Ghent University and the University of Antwerp. IDLab performs fundamental and applied research on internet technology and data science, and is, with over 300 researchers, one of the larger research groups at imec. The research areas of IDLab cover machine learning and data mining, semantic intelligence, and cloud and big data infrastructures (a/o). Graduates of IDLab are currently working at Google DeepMind and Google Brain.

[Job Summary](#)

Full-Time Research & Teaching Assistant, PhD Candidate – Ghent University Global Campus

Department: Department of Environmental Technology, Food Technology, and Molecular Biotechnology (KRO1)

Department: Department of Electronics and Information Systems (TW06)

Degree: Master's degree in one of the following disciplines: computer science/engineering, informatics, electrical engineering, applied mathematics, biomedical engineering, or a related field

Contract: 1 + 1 + 2 + 2 years, for a total of maximum 6 years (renewal conditional on a positive evaluation)

Occupancy rate: 100%

Vacancy type: Research and Teaching Assistant (PhD Candidate, AAP)

Last application date: Review of applications will begin on December 10, 2024, and continue until the position is filled

Starting date: March 1, 2025 (open to negotiation)

Scientific supervisor: Prof. Wesley De Neve

[Job Position](#)

Ghent University Global Campus, South Korea, has a vacancy for a Research & Teaching Assistant in the area of biotech data science, starting from March 1, 2025 (open to negotiation). This is a 1-year full time position that is renewable three times (upon favorable evaluation), for a total period of maximum 6 years.

The candidate will work as a PhD candidate at the Center for Biosystems and Biotech Data Science of the Ghent University Global campus in Korea, under the guidance of two to three doctoral advisors. In addition, the candidate will be able to spend time at the home campus in Ghent during their PhD studies (at IDLab - ELIS). For non-Korean applicants, free student accommodation and a yearly travel budget are foreseen. Ghent University Global Campus is an equal opportunities employer.

The PhD candidate is expected to spend about 50% of their assignment on supporting the department in teaching undergraduate courses in informatics and bioinformatics. These activities include for the most part the supervision of exercise sessions and computer labs, as well as assisting in the development of new course materials (e.g., assignments and exam questions), the grading of assignments and exam questions, and the supervision of yearly bachelor projects and occasional internships and master's theses.

Apart from helping out with teaching, the PhD candidate is expected to perform research on the topic of (deep) machine learning, either targeting applications in the domain of biological sequence analysis (e.g., structural and functional genome annotation) or in the domain of biomedical image understanding (e.g., surgical video analysis). In this respect, the candidate is expected to complete a doctoral research proposal of about 10 pages within the first six months of their appointment, containing a literature review, a set of research objectives, a work plan (work packages and a Gantt chart), and a publication plan. This doctoral research proposal is to be approved by the GUGC Campus Council (this approval is a necessary condition for the first contract extension).

The targeted doctoral degree is the degree of Doctor in Computer Science Engineering, as awarded by the Faculty of Engineering and Architecture of Ghent University in Belgium. More information about this doctoral degree can be found at <https://www.ugent.be/ea/en/for-phd-candidates-and-students>. More information about pursuing a doctoral degree at Ghent University can be found at <https://www.ugent.be/en/research/doctoralresearch>.

Note that candidates with a non-Belgian Master's degree need to undergo a diploma assessment, requiring the identification of a set of courses from the entire educational curriculum of the candidate that is equivalent to at least 18 ECTS credits of general courses and/or courses related to the main subject (master dissertation not included) of a Belgian Master of Science Degree in Engineering Technology.

Job Description

- ♦ Assist their supervisors in teaching undergraduate courses at Ghent University Global Campus, Korea (Informatics and Bioinformatics).
- ♦ Conduct personal (applied) research in the area of deep machine learning (methodological innovation), targeting applications in the domain of biological sequence analysis and/or biomedical image understanding.
- ♦ As far as this is relevant to the candidate's doctoral research project, assist their supervisors with tasks in ongoing and future R&D projects, and help build and sustain research collaborations with other centers at both the global campus and the home campus.
- ♦ Present research results at internal and external events (promotional events, doctoral research seminars, major national and international conferences) and publish research results in peer-reviewed international journals.

Candidate Profile

- ◆ You hold, or you are expected to hold, by March 2025, an MSc degree in one of the following disciplines: computer science/engineering, informatics, electrical engineering, applied mathematics, or biomedical engineering. Related disciplines may be considered as well.
- ◆ You have an excellent academic record of accomplishment. In particular, you have a good command of, and a strong interest in, computer programming.
- ◆ You are highly motivated to conduct (applied) research at the intersection of (deep) machine learning and the life sciences (biotechnology).
- ◆ You have good programming skills in languages such as C++, Python, Rust, and/or R. You are familiar with the usage of GitHub.
- ◆ You have strong analytical skills to interpret (both analysis and synthesis) the obtained experimental results.
- ◆ You are driven to do independent research, and you have a strong self-learning ability. A creative and inquisitive attitude is a necessity.
- ◆ You have an excellent command of English (a minimum score of 80 on the TOEFL iBT test), both written and spoken.
- ◆ You are comfortable with working in an international and multi-cultural environment that is dynamic in nature (Ghent University Global Campus counts more than 20 nationalities among its PhD students).
- ◆ You have some experience with scientific computing and machine learning.
- ◆ Experience with a deep learning framework (e.g., PyTorch, TensorFlow, Keras) is a plus.
- ◆ Awareness of current trends in computational biology and (machine learning-based) computer vision is a plus.
- ◆ You possess good academic writing and presentation skills.
- ◆ You have at least 3 years of documented relevant work experience after completion of your master's degree in case you do not have the Korean nationality. The Korean government waives this visa requirement if you received your master's degree from a Korean university.
- ◆ If need be, you have the willingness to work flexible hours and to participate occasionally in events outside of the regular working hours.

Selection Criteria

- ❖ Scientific background and knowledge
- ❖ Educational experience
- ❖ Programming skills (computational and algorithmic thinking)

Application Documents

- ❖ Motivation letter

- ❖ Full resume (CV), including at least 2 references
- ❖ Copy of the BSc and MSc degrees
- ❖ Transcripts (overview of study results)
- ❖ A PDF version of your Master's Thesis

The application documents must be merged into a single PDF file and be sent via email to Prof. Wesley De Neve (wesley.deneve@ghent.ac.kr) (subject line: Full-time PhD Position in Biotech Data Analysis). The candidate will receive an email confirming receipt of the application.

Application Process and Interview

- ♦ Interviews will take place in stages from the first available time.
- ♦ Applicants are encouraged to apply in a timely fashion as the position will be filled upon finding the right candidate.

We reserve the right to hold applications on file for potential future job openings. For inquiries, please contact us via email.

Selection Process

- ♦ CV screening (shortlisting) -> Interview and technical test (programming in Python, use of Linux, and possible use of a machine learning framework) -> Internal committee -> Approval -> Acceptance notice to the candidate selected.

Compensation & Benefits for the Selected Candidate

- ♦ Basic terms of the contract
 - 1-year contract (renewable one time, after positive evaluation, for a total period of maximum 6 years).
- ♦ Salary
 - Starts from an Annual Base Salary of 27,375,000 KRW (Monthly Salary of 2,281,250 KRW, Gross).
- ♦ Bonuses
 - Two additional bonuses in June (92% of monthly salary) and December (100% of monthly salary).
- ♦ Housing unit or housing allowance
 - A single dormitory unit operated by Incheon Global Campus (IGC) will be provided for non-Korean candidates. If the selected candidate has the Korean nationality, or if the selected candidate is a permanent resident in Korea, then a housing unit will not be provided. Instead, a monthly housing allowance of 725,000 KRW will be made available then.

- ♦ Two roundtrip tickets to hometown (for non-Korean candidates only)
 - A non-Korean candidate will be provided, on a yearly basis, with two roundtrip tickets to their hometown (with a cost of up to 4,000,000 KRW).

- ♦ Severance
 - Severance shall be paid when the contract ends and if the candidate worked for more than one year.

- ♦ Private health insurance
 - Marsh private health insurance is provided, which includes basic medical reimbursements.

- ♦ Extensive annual paid leave and holidays
 - The selected candidate shall have 35 days of paid annual leave per year.
 - Additional holidays: from Christmas (Dec 25) to New Year (Jan 1).

Selection Committee

Prof. Wesley De Neve
Prof. Joris Vankerschaver
Prof. Shodhan Rao