Arman Kolozyan

MSc Student Computer Science (Software Engineering) at Vrije Universiteit Brussel | Nokia Bell Labs Intern

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EXPERIENCE

September 2024 - Present

Nokia Bell Labs, Antwerpen
Security Research Intern

- Conducting research focused on the security analysis of Zero-Knowledge Proofs (ZKPs).
- The goal is to identify vulnerabilities in ZKP programs, categorize them, and create a tool to detect those bugs.
- The thesis ultimately seeks to enhance the security of ZKP implementations and provide insights for developers in this field.

July 2024 - September 2024

COSIC (KU Leuven), Leuven
Security Research Intern

- COSIC is a leading research institution in cryptography and software/hardware security.
- Conducted an in-depth security analysis of the Matter standard for smart home communication, with the aim of identifying potential security weaknesses and vulnerabilities.
- Performed formal verification of Matter's protocols using automated tools, which involved modeling and verifying the protocols to uncover flaws.
- Worked under the guidance of Dave Singelée, Sayon Duttagupta, Georgio Nicolas and Professor Bart Preneel, whose combined expertise was instrumental to the project.
- This experience strengthened my skills in protocol security analysis and formal verification, and expanded my understanding of security challenges within the IoT field.

September 2024

Technische Universität Darmstadt, Germany
Summer School Participant

- Attended the ACM Europe Summer School on Distributed and Replicated Environments (DARE) 2024 in Darmstadt, Germany, focused on advanced topics in distributed systems.
- It offered me both theoretical and practical knowledge, with lectures focusing on consistency models, verification techniques, and programming models for distributed applications.
- Participated in hands-on sessions and worked on a small research project, deepening my understanding of current challenges and solutions in distributed systems.

2 years 4 months

Vrije Universiteit Brussel

November 2021 - November 2024

Programming Lecturer

- Lecturer for additional programming classes (in the programming language Scheme), organized for first year Computer Science students at my university. I was allowed to teach these exercise sessions together with a few other fellow students.
- I always prepared slides to help the students refresh the necessary theory. Then we solved exercises in preparation for the exam.
- During the coronavirus period, I gave a session online and an on-campus session every other week.
- If the session went online, I had the students share their code via a code-sharing website where I provided comments to help them make progress.

Lecturer of Mathematics
September 2023 – September 2023

- I taught the following topics of mathematics for both mathematics and non-mathematics background students: Plane Geometry, Analysis, Functions, Trigonometry.
- This was my first experience teaching a class of more than 40 students.

Lecturer of Preparation/Bridge Course in Mathematics
September 2022 – September 2022

- I taught the following topics of mathematics for both mathematics and non-mathematics background students: Linear Algebra, Plane Geometry, Three Dimensional Geometry.
- This was my first experience teaching a class of more than 30 students.

Webmaster
April 2022 – September 2022

- Helping with the development of the new website of the Vrije Universiteit Brussel (VUB).
- Regularly making small adjustments to the site, creating new events, etc.
- Following up a ticketing system and resolving tickets from VUB staff and external people.

Integration of Usolv-it Exercises into the Canvas Learning Platform
July 2022 – July 2022

- Writing mathematics problems in LaTeX format.
- Managing mathematics assignments in Usolv-it.
- Converting Usolv-it assignments into tests and then migrating these to the Canvas learning platform.

Organization of Pretests in Mathematics, Chemistry and Physics
September 2021 – September 2021

- Correcting pre-tests (which test the prior knowledge of first-year university students).
- Supervising when the students take their tests.

Teaching Assistant of Preparation/Bridge Course in Mathematics
August 2021 – September 2021

- Organizing live question sessions.
- Answering students' questions on discussion fora.
- Correcting tests.
- Updating the solutions of exercises on the website of the mathematics book 'Wiskundige basisvaardigheden' (basiswiskunde.be).

Argenta, Antwerpen
API Inventarisation Internship
August 2022 – August 2022

- Argenta is a Belgian bank and insurance group offering financial services in Belgium, the Netherlands, and Luxembourg.
- Spent a month in Argenta's IT Shared Service Integration department, assisting with the identification of available APIs.
- Created a comprehensive list of technical and functional descriptions of APIs and researched optimal tools for inventory setup and maintenance.
- Worked three days per week at the headquarters in Antwerp and two days from home, with weekly follow-ups.
- This role brought me a first business experience in IT, improved my skills in conveying information smoothly and correctly, enhanced my ability to ask targeted questions to colleagues, and introduced me to agile/scrum methodologies.

ZEB, Merchtem
Logistics and Outlet Employee
July 2020 – September 2020

RFID, Sorter, Optical Scanning.

Jette Clean
Cleaner
July 2019 – August 2019

Famiris, Brussels
Helpdesk
March 2019 – March 2019

Assisting Famiris (federal child benefits agency) staff with technical problems.

EDUCATION

September 2023
- September
2025

Vrije Universiteit Brussel

Master of Science in Applied Sciences and Engineering: Software Languages and Software Engineering

Current Grade: Greatest Distinction

September 2020
- September
2023

Vrije Universiteit Brussel

Bachelor's degree, Computer Science

Grade: Greatest Distinction

September 2014
- September
2020

GO! Atheneum Emanuel Hiel

Science-Mathematics (8h math/week)

Grade: Greatest Distinction

PUBLICATIONS

July 2020

How to Become a Memory Champion?
EOS Wetenschap

EOS Wetenschap is a renowned Belgian monthly magazine that covers the latest advancements in science for a broad audience. "Arman Kolozyan is 19 years old. He graduated in Science-Mathematics from GO! Atheneum Emanuel Hiel and has always dreamed of having a fantastic memory. Can anyone become a memory champion? He researched this question and wrote an article on his findings." You can read the article here (it is in Dutch).

HONORS

Winner Cyber Security Challenge Belgium 2024 (qualifiers)

National team competition for students about cyber security. We advanced through the qualifiers, securing first place out of 286 teams. We later finished 8th in the finals. My main contributions were to the cryptography category.

https://www.cybersecuritychallenge.be

Finalist Cyber Security Challenge Belgium 2023

National team competition for students about cyber security. We successfully advanced through the qualifiers and secured 7th place out of 289 teams in the finals. My main contributions were to the cryptography and forensics categories.

https://www.cybersecuritychallenge.be

Pre-Finalist Cyber Security Challenge Belgium 2022

National team competition for students about cyber security. We successfully advanced through the qualifiers and secured 43rd place out of 253 teams in the pre-finals. My main contributions were to the cryptography and forensics categories.

https://www.cybersecuritychallenge.be

Winner Vrije Universiteit Brussel (VUB) CTF 2021

Capture The Flag (CTF) is a competition in which teams solve tasks related to cyber security.

https://ctf.infogroep.be

Interview in BRUZZ (Belgian magazine)

After I successfully completed my first academic year, I was interviewed in this Belgian news article about the Computer Science major and my academic achievements. I was later also invited for a radio interview.

Finalist Wiskunnend Wiske Wedstrijd 2020

Competition where challenging mathematics questions must be solved by students in their fifth and sixth years of secondary school.

https://www.vub.be/wiskunnend-wiske

VOLUNTEERING

September 2023 - Present

Infogroep

Corporate Relations, Lectures & Seminars

Infogroep is the student group founded for the students of Computer Science at the Vrije Universiteit Brussel (VUB). At Infogroep, we organize activities such as classes and seminars, competitions, a gaming tournament, a job fair, etc.

October 2022 - Present

Vrije Universiteit Brussel

Student Representative in Study Programme Committee

Serving on the Study Programme Committee as Student Representative, actively contributing to the enhancement of academic programs and the overall student experience. Collaborating with faculty, administration, and fellow students to advocate for student needs, voice concerns, and promote positive changes within the educational institution.

March 2024

Brussels Workshop on Real-Time Scheduling and Operating System Synergies

Student Volunteer at Computer Science Workshop

Assisted attendees in navigating the university campus.

December 2021 - September 2023

Infogroep

Corporate Relations, Public Relations and Job Fair Organisator

I served as the head of the annual job fair organized by our student association. In order to make the job fair a success, I ensured extensive promotion across various academic disciplines, which involved promotion at the beginning of lectures, running paid Facebook advertisements, and more. I made concerted efforts to attract a diverse range of appealing companies to participate. Ultimately, the job fair proved to be a great success, with over 100 attendees, 15+ participating companies, and with more than 150 student CVs submitted.

October 2022

GameForce

Student Volunteer at Gaming Event

GameForce is the largest gaming event in the Benelux. As a volunteer, I had the responsibility to stand at various (gaming) booths, attract visitors to these booths and provide the necessary assistance to the visitors.

September 2022

International Conference on Managed Programming Languages & Runtimes

Student Volunteer at Computer Science Conference

- Room Support: Assisting presenters in the conference room and troubleshooting technical issues, passing the microphone for questions, etc.
- Outside Support: helping in the main hall at the registration desk, setting up coffee breaks, etc.