LUCIAN BICSI

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WORK EXPERIENCE

CTO & Co-founder
Synaptiq Technologies

Jun 2021 – Present | Bucharest, Romania (remote)

- Working on a product that provides automatic contouring of organs-at-risk for cancer treatment using AI.
- Developed the product from **idea stage** (TRL 2) to **scalable production-level software** (TRL 9).
- Architectured the front-end **medical image viewer** (React), back-end (Python + PyTorch), and agent workers (deployed using self-hosted Docker registries).
- Designed a highly-efficient **geometry kernel** (Rust + WebAssembly) for real-time manipulation of (vector) polyhedral shapes.
- Implemented a patient data protection workflow using a combination of **data anonymization** & **end-to-end encryption**.
- Pitched the product to investors in multiple occasions around Europe, including the **lead investor** of latest round.
- Designed an innovative segmentation method, which ultimately secured the company a **€1.5M grant**.

Full Stack Developer
RoboSelf Technology

Oct 2019 – Apr 2020 | Bucharest, Romania

- Worked on a solution to automate repetitive tasks with intelligent **conversational agents** (React front-end, Python back-end, Google Firestore & Neo4J data stores, C# UiPath Workflows).
- Wrote a **natural language understanding pipeline** that combines machine learning, weighted context-free grammars, & information inside a graph knowledge base to understand the intent of a user.

Software Developer Intern
Jane Street

Jul 2019 – Oct 2019 | London, UK

- Developed a web-based tool to **visualize market data** (OCaml), integrating it with the proprietary systems through a client-server architecture.
- Engineered & developed a solution for processing exchange data in post-Brexit scenarios.

Software Developer Intern
Google

Jul 2018 – Oct 2018 | Mountain View

- Worked on an infrastructure project involving C++ & Go pipelines & bash scripts for distributed jobs.
- Wrote an IPython Notebook for visualizing & analyzing data.
- Extracted & analyzed live metrics from users using Google infrastructure tools.

EDUCATION

Pursuing a Ph.D. in Machine Learning
University of Bucharest

Sept 2020 – Present

M.Sc. in Artificial Intelligence
University of Bucharest

Sept 2018 – June 2020

- Valedictorian of my student cohort, with a GPA of 9.87/10.
- My Master's thesis focused on using deep learning for inferring algorithmic techniques found in competitive programming problems.

B.Sc. in Computer Science
University of Bucharest

Sept 2015 – June 2018

- Valedictorian of the CS department, with a GPA of 9.94/10.
- For my Bachelor's thesis I wrote a trie-like data structure that outperforms the C++ STL alternative (available on GitHub).

STRENGTHS

Fast Prototyping
I can provide POCs efficiently, as well as scale them to production-level software.

Autonomy
As an experienced software engineer in startup environments, I can accomplish complex and difficult tasks with little to no need for supervision.

Efficient coding
Due to my passion for competitive programming and optimization contests, I write clean and efficient code, without much effort.

C++ Python Rust TypeScript Scala
OCaml Linux PyTorch Django FastAPI
SQL React NextJS AWS Azure

Software Developer Intern

Bloomberg LP

Jul 2017 – Oct 2017 | London, UK

- Worked in a big data processing project involving Spark & Cassandra, having to learn Scala from scratch.
- Optimized computations on millions of data points to a couple of seconds (including data loading).
- Held presentations about my project in front of team members around the world, showcasing the results.

Junior Software Developer

ATOOOM Industries

Jul 2016 – Jun 2017 | Bucharest, Romania

- Worked for a start-up developing mobile applications using Xamarin.Forms & C#.

Machine Learning Intern

Bitdefender

Dec 2015 – Jun 2016 | Bucharest, Romania

- Wrote a scientific report comparing shallow RNNs to bloom filters on memory consumption for exact spell checking.

AWARDS

Silver Medal – ICPC World Finals

2021 | Moscow, Russia

My team of 3 ranked 8^{th} at the most prestigious competitive programming contest, marking the first medal won by a Romanian team in 18 years. Our team solved 10 algorithmic problems of very high difficulty, requiring fast code writing and quick debugging.

First Place – ICPC South-Eastern Europe Regional Contest (SEERC)

2017 & 2019 | Bucharest, Romania

Ranked 1^{st} twice in the South-Eastern Europe regional contest of the ICPC, representing the University of Bucharest in the 2017 and 2019 editions of the contest.

Finalist – ICPC World Finals

2018 | Beijing, China

Qualified and ranked 24^{th} in the 2018 ICPC World Finals, representing the University of Bucharest.

Finalist – Google Hash Code World Finals

2017 | Paris, France

Qualified and ranked 12^{th} to the Google Hash Code finals, one of the most prestigious programming optimization contests.

Third place – Codeflows Finals

2021 | Online

Qualified and ranked 3^{th} to the CodeFlows finals organized by Bending Spoons, with 3400 participants.

LANGUAGES

Romanian – Native

English – Fluent (C2)

German – Beginner

PROJECTS

CPrep – Contest Preparation Tool

github.com/bicsi/cprep

Command line tool that helps problem setters prepare programming contests. It facilitates test case generation, validation, and model solutions evaluation.

Autotest – Goal-oriented Test Case Generator

github.com/bicsi/autotest

Automatic framework for test generation that uses a Tree of Parzen Estimators algorithm to generate test cases that optimize a given metric in a black box manner. This allows users to create test cases that satisfy certain criteria, by fuzzing over the parameter space of the generator program.

KACTL – ICPC Notebook

github.com/bicsi/kactl

Fork of the KACTL project for our teamś ICPC notebook. I wrote over 100 snippets of algorithms and data structures, ranging from geometry primitives to Gomory Hu trees. I actively sought the shortest and most concise implementations, so that they can easily be transcribed from paper during contests.
Many of my implementations have been integrated upstream into the original project of KTH University.

PUBLICATIONS

L. Bicsi, B. Alexe, R. T. Ionescu, and M. Leordeanu, "Jedi: Joint expert distillation in a semi-supervised multi-dataset student-teacher scenario for video action recognition," *in Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV) Workshops, Oct. 2023, pp. 953– 962.*

OTHER ACTIVITIES

When I'm not actively coding, I like spending time on playing piano and guitar, or going out singing karaoke.

I also take part in the scientific committee of various national and international competitive programming contests, including ICPC Regionals & Europe Championship.