

Emil Emilov Indzhev

Curriculum Vitae

EDUCATION

2018 – 2021 **St Catherine's College,
University of Oxford, UK**
BA Computer Science
First year grade: 85.75/100
First year rank: 2nd place
Second year grade: 83.5/100

2013 – 2018 **Baba Tonka Upper High
School of Mathematics,
Ruse, Bulgaria**
Secondary Education
Final grade: 5.91/6

WORK EXPERIENCE

JULY 2021 – INCOMING

Jane Street

Quantitative Trading Intern

Incoming internship.

JULY 2020 – SEPTEMBER 2020

Jane Street

Software Engineering Intern

Working on an internal tool used for managing database permissions and roles based on given specifications. Also had a lot of trading related classes and participated in several mock trading competitions between interns.

JULY 2019 – SEPTEMBER 2019

Ocado Technology

Software Engineering Intern

Part of the Machine Learning Research team in Sofia. Worked on a reinforcement learning project about training a robotic arm. Added custom features and environments to the company branch of the Robosuite simulator.

SEPTEMBER 2018 – FEBRUARY 2019

Musala Soft

Software Developer

Developing algorithmic problems for and generally supporting Musala Soft's international programming competition CodeIT. Prepared the problems for two "sprint" rounds and one "marathon" round, which consist of several short problems and a long optimizational problem respectively.

PERSONAL PROJECTS

Particle Structures

Physics simulation with procedurally generated laws that lead to particles forming interesting lattices. Numerical stability and efficiency improved by using higher order Taylor expansions.

Kigurai

A machine learning library for C++ built from scratch. Supports most common types of layers and activation functions, as well as adding custom ones. Most frequently used network architectures, such as CNNs, can be implemented with the built-in features.

Evolving Snakes

Snakes in an environment similar to the classical game Snake are controlled by neural networks and can reproduce. The snakes evolve, while varying emergent behaviors arise. They also have access to internal memory, which can lead to interesting strategies, such as zigzagging in order to explore more locations faster.

Als for Games

Als for various games such as Hanabi, Bulls and Cows, Despirala, Colonel Blotto and others. Some are based on hard-coded heuristics or various search algorithms, though in some cases the main concern is finding efficient Monte Carlo approaches to approximating some distribution.

Physics Simulation

Physics simulation made up of basic building blocks, such as particles with electrical charges and springs. Complex physical phenomena, such as wave diffraction and electric dipoles, appear without being preprogrammed in the simulation.

IUPAC Name Generator

Generates the scientific names of complex organic compounds according to the IUPAC specifications. Also supports generating a compound when given its name, but this feature works only for a more limited set of simpler compounds.

ACHIEVEMENTS AND AWARDS

International competitions

- 2020 **Google Hash Code**
Finalist, with team Eel
- 2018 **Microsoft Bubble Cup**
Finalist, with team nikva tikva
- 2017 **International Autumn Tournament in Informatics**
Bronze Medal
- 2017 **International Linguistics Olympiad**
Bronze Medal
- 2016 **International Autumn Tournament in Informatics**
Bronze Medal
- 2015 **Balkan Olympiad in Informatics**
Bronze Medal
- 2014 **Junior Balkan Olympiad in Informatics**
Gold Medal
- 2014 **International Conference on Computer Systems and Technologies**
Crystal Prize for Best Paper

Notable national competitions

- 2018 **National Olympiad in Linguistics**
Silver Medal
- 2018 **Spring Competition in Informatics**
Gold Medal
- 2018 **National Olympiad in Physics**
Laureate
- 2018 **National Olympiad in Informatics**
Gold Medal
- 2017 **Autumn Competition in Physics**
Silver Medal
- 2017 **Young Physicists' Tournament**
First Place, with team Perun

LANGUAGE SKILLS

BULGARIAN	Native
ENGLISH	Fluent, IELTS Academic: 8/9
ESPERANTO	Beginner
GERMAN	Basic

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OTHER ACTIVITIES

ONGOING

Informatics and Linguistics Competitions

Problem Setter and Grader

Frequently setting problems for Bulgarian national and international competitions in informatics such as IATI, The National Olympiad in Informatics and others. Also, occasionally setting problems for the linguistics competitions, as well as grading the works of the competitors.

ONGOING

Various Places

Competitive Programming Lecturer

Occasionally holding lectures on competitive informatics topics such as some advanced algorithms and data structures at various summer schools, academies, etc.

MARCH 2019 – MARCH 2021

Oxford University Societies

Committee Member

Member of the committees of several university societies including the Bulgarian Society and the Guild of Assassins. Positions include Secretary and Guild Master.

OCTOBER 2019 – APRIL 2020

Oxford

Bulgarian Language Tutor

Private tutoring in Bulgarian. Preparing study materials, such as exercises and a description of the grammar, written in a easy to learn way.

SOFTWARE SKILLS

LANGUAGES	C++, C, Python, OCaml, Scala, Haskell, Java, C#, JavaScript
PLATFORMS	Windows, Linux
OTHER	LaTeX, Microsoft Office, Google Sheets, Git