MIROSLAV GASPAREK

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EDUCATION

DPhil in Engineering Science, St Cross College, University of Oxford 2019 - 2022

- *Research topic:* A control theory approach to analyse and design synthetic gene circuits. Supervised by Professor Antonis Papachristodoulou and Professor Harrison Steel.
- Founder of St Cross College Innovation Society, President of Oxford University Synthetic Biology Society.

MEng in Biomedical Engineering, Imperial College London 2015 - 2019

- Overall grade: First Class Honours.
- Bioengineering Departmental Representative, Member of the Imperial College Union Council, Co-Chair of Imperial College London Synthetic Biology Society, Industrial Liaison Officer of Imperial College Bioengineering Society.

AWARDS AND ACHIEVEMENTS

St Edmund Hall, University of Oxford: Pontigny Scholarship (2020)
Central European Foundation (CEF): Talents of the New Generation Scholarship (2018, 2019, 2020)
Tatra Banka Slovakia: Students to the World Scholarship (2018 and 2019)
Imperial College Faculty of Engineering Alumni Association: Student Activity Award (2018)
Institution of Engineering & Technology: Undergraduate Award (2018)
Royal Academy of Engineering: Engineering Leaders Scholarship (2017-2019)

RESEARCH EXPERIENCE

Undergraduate Research Student in Tanaka Group, Imperial College London Oct 2018 - Jun 2019

- (MEng Final Year Project) Design of the individualized eczema treatment policies using reinforcement learning. Supervised by Dr. Reiko J. Tanaka.

Visiting Research Intern at Endy Lab, Stanford University Jul 2018 - Sep 2018

- Changing compatibility of the plasmid vectors for the realization of protein-protein interaction assay in the minimal genome (JCVI-syn3.0). Supervised by Professor Drew Endy.

Visiting Research Intern at Murray Lab, California Institute of Technology Jul 2017 - Oct 2017

- Development of the computational framework *BioSIMI* for the input/output modelling of interconnected genetic circuits. Supervised by Professor Richard M. Murray.

Undergraduate Research Intern in Tanaka Group, Imperial College London Feb 2016 - Aug 2016

- Mathematical & computational modelling of the optimal treatment of eczema. Supervised by Dr Reiko J. Tanaka.

PREPRINTS AND PUBLICATIONS

- "A stochastic, individual-based model for the evaluation of the impact of non-pharmacological interventions on COVID-19 transmission in Slovakia." Miroslav Gasparek, Michal Racko, and Michal Dubovsky. MedRxiv. 2020. (Preprint)
- "Reducing post-transcriptional disturbances by small RNA-based antithetic integral feedback circuit." Miroslav Gasparek, Harrison Steel, Antonis Papachristodoulou. In American Control Conference. 2021. (Submitted for Initial Review)

PROFESSIONAL EXPERIENCE

Advisor to the Institute of Health Policies, Slovak Ministry of Health Mar 2020 - May 2020

· Worked on modelling COVID-19 spread for Slovak governmental think-tank. Developed a stochastic, agent-based model of the disease spread, conducted literature research, background analysis, and public communications.

Co-founder at Genbiotics Feb 2020 - present

· Co-founder of start-up that engineers bacteria to treat human diseases. Responsible for product and marketing.

Graduate Teaching Assistant at University of Oxford Jan 2020 - Mar 2020

· Graduate Teaching Assistant for Control Labs course A2 Helicopters. Mentored students during the computational task assignments and marked their laboratory work.

Value Delivery Consultant Intern at Exponea Aug 2016 - Oct 2016

· Internship in a Slovak start-up offering e-commerce data analysis and customized marketing solutions.

· Customer analytics consulting, implementation of the automated marketing solutions using HTML and JavaScript.

Co-Founder & Head of R&D: Wells Oct 2015 - Oct 2016

· Co-founded a smart PET bottle cap (WellsCap) tracking user's water intake and developed an algorithm for the user's optimal water intake calculation. The project won the UK national round of *CISCO Switch-Up Challenge*.

SOCIETIES, COMMITTEES, AND AFFILIATIONS

Vice President of the Oxford University Czech and Slovak Society Mar 2020 - present

President of the Oxford University Synthetic Biology Society Dec 2019 - present

· Synthetic Biology Society aims to increase the awareness of Synthetic Biology and its benefits in Oxford area through talks, discussions, competitions, and other events.

Founder of St Cross College Innovation Society at the University of Oxford Nov 2019 - Oct 2020

· The Society brings together students from different disciplines and backgrounds to discuss and contribute to the solution of major global challenges, such as UN Sustainable Development Goals and NAE Grand Challenges.

UG Engineering Representative at Imperial College Union Council Oct 2018 - Aug 2019

· One of four representatives of undergraduate engineers in the highest body of the Imperial College student union.

Bioengineering Departmental Representative at Imperial College London Oct 2017 - Aug 2019

· Representative of all undergraduate and taught postgraduate bioengineering students (approx. 700) on the Departmental level, participated in the curriculum review, managed the Bioengineering student representation team.

· Management of the student representation team, engineering representative to the Imperial College Union Council.

Bioengineering Year Representative at Imperial College London Oct 2015 - Aug 2017

· Representative of Class of 2019 undergraduate bioengineering students (approx. 100).

Co-Chair of Imperial College Synthetic Biology Society Aug 2017 - Aug 2018

Industrial Liaison Officer at Imperial College Bioengineering Society Aug 2016 - Aug 2018

· Responsible for the corporate relations, sponsorship acquisition, and organization of the entrepreneurial events.

· Co-organized & secured funding for the first two Imperial Hackatons focused on the healthcare applications.

RESEARCH INTERESTS, TECHNICAL SKILLS & EXTRACURRICULARS

Research Interests: Synthetic Biology, Systems Biology, Control Theory, Reinforcement Learning
Technical Skills: MATLAB, Python (e. g. NumPy, Keras, Pandas), Wet Lab Skills, Data Analytics & ML
Extracurriculars: Accordion, Weightlifting, Medicine & Healthcare, Entrepreneurship, Economics, Politics