NIKOLAY NIKOLOV

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EDUCATION

ETH ZURICH
EXCHANGE MASTER STUDENT
2017-2018 | Zurich, Switzerland

COURSES:
Deep Learning • Optimal Control
Artificial Intelligence
Machine Learning
Computer Vision for Robotics

IMPERIAL COLLEGE LONDON
MENG ELECTRONIC AND INFORMATION ENGINEERING
2014-2018 | London, UK
First Class Honors 72.4%
GPA equivalent: 4.0

COURSES:
Computer Vision • Robotics
Machine Learning • Control
Operating Systems • Compilers
OOP • Networks • Databases
Algorithms and Data Structures

ONLINE COURSES:
- Deep Reinforcement Learning - Sergey Levine, UC Berkeley
- CNNs for Visual Recognition - Andrej Karpathy, Stanford
- Machine Learning - Andrew Ng, Stanford

SKILLS

PROGRAMMING
Expert: C/C++ • Python
Intermediate: Java • Shell • SQL
MATLAB • JavaScript • HTML/CSS

SOFTWARE
Linux • ROS • OpenCV • CUDA
TensorFlow • git • GNU make

ROBOTICS
Reinforcement Learning • SLAM
Deep Learning • Vision

LANGUAGES
English • Bulgarian • Russian

AWARDS

JESSEL ROSEN RESEARCH AWARD
2015 | London, UK

INTERNATIONAL YOUNG PHYSICISTS TOURNAMENT - BRONZE MEDAL
2013 | Taipei, Taiwan

STEM DISTINCTION BY THE PRESIDENT OF BULGARIA
2013 | Sofia, Bulgaria

EXPERIENCE AND RESEARCH

LEARNING & ADAPTIVE SYSTEMS GROUP | RESEARCH ASSISTANT
Sep 2017 - Present | ETH Zurich
Deep Reinforcement Learning Research
- Working in the group of Prof. Andreas Krause
- Exploring the distributional perspective of Reinforcement Learning

OCADO TECHNOLOGY | ROBOTICS RESEARCH INTERN
July 2017 - Sep 2017 | Hatfield, UK
Deep Reinforcement Learning for robot picking
- Implemented a Deep RL algorithm for picking objects from a basket using a camera
- Based on the visual servoing Deep RL approach in Levine et al.
- Implemented in TensorFlow and deployed on a UR10 robotic arm

DYSON ROBOTICS LAB | RESEARCH ASSISTANT
Jan 2017 - Sep 2017 | Imperial College London
Bayesian Fusion for Volumetric SLAM based on Occupancy Mapping
- Worked under the supervision of Prof. Stefan Leutenegger
- Developed Bayesian formulation for volumetric occupancy fusion from depth camera
- Prototyped real-time implementation for a CPU or a CUDA-enabled GPU
- Demo: nikonikolov.com/projects/bfusion
- Submitted paper to IEEE RA-L and ICRA 2018

AERIAL ROBOTICS LAB | RESEARCH ASSISTANT
June 2015 - Jan 2017 | Imperial College London
Built a Walking Hexapod Quadcopter that can both walk and fly
- Demo: nikonikolov.com/projects/wkquad

PUBLICATIONS

Efficient Octree-Based Volumetric SLAM Supporting Signed-Distance and Occupancy Mapping. ICRA 2018. Emanuele Vespa, Nikolay Nikolov, Marius Grimm, Luigi Nardi, Paul H J Kelly, Stefan Leutenegger. In review

PROJECTS

THIRD YEAR GROUP PROJECT — 2017 | Imperial College London
Baxter robot that autonomously delivers snacks indoors
- Worked under the supervision of Prof. Petar Kormushev (Robot Intelligence Lab)
- Built ROS-based algorithm for localization, path-planning and obstacle avoidance
- Demo: nikonikolov.com/projects/asda

DRONE DELIVERY SYSTEM — 2017 | Providence, RI, US
Raspberry Pi-operated DJI M-100 to deliver food in Brown University
- Demo: nikonikolov.com/projects/dronedelivery

EUROBOT 2017 ROBOTICS COMPETITION — 2017 | Imperial College London
- Built a robot to recognize, collect and move objects
- Work involves ROS, Embedded Systems, Localization, State Estimation

HACKZURICH — 2016 | Zurich, Switzerland
Built an image-processing and OCR based app that can scan grocery receipts to keep track of fridge contents. Used OpenCV and Google OCR API

COURSEWORK
- Collaborative Filtering for movie recommendation
- SVM for MNIST dataset
- Raspberry Pi robotic car that autonomously navigates and recognizes objects
- C90 to MIPS compiler implemented in C++
- MIPS CPU and cache emulators implemented in C++
- Real-time image-processing FPGA architecture that tracks human eye movements