

# NIKOLAY NIKOLOV

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THIRD-YEAR STUDENT LOOKING FOR 3-6 MONTH ROBOTICS SOFTWARE INTERNSHIP

## EDUCATION

### IMPERIAL COLLEGE LONDON

#### MENG ELECTRONIC AND INFORMATION ENGINEERING

2014-2018 | London, UK

First Class Honors 72.4%

GPA equivalent: 3.8 - 4.0

#### MODULES INCLUDE:

Computer Vision • Robotics

Machine Learning

Control Systems

Embedded Systems

Signal Processing

Operating Systems

Compilers • OOP

Networks • Databases

Algorithms and Data Structures

Communication Systems

#### ONLINE COURSES:

Robotics - UPenn

Machine Learning • AI - Stanford

Reinforcement Learning - Imperial

Concurrent Programming - MIT

## SKILLS

### PROGRAMMING

Expert: C/C++ • Python

Intermediate: Java • Shell • SQL

MATLAB • JavaScript • HTML/CSS

### SOFTWARE

Linux • ROS • OpenCV

git • make • PCL [learning]

### HARDWARE

mbed • Raspberry Pi

FPGA • Pixhawk • Arduino

### ROBOTICS

SLAM • Vision • Embedded

Probabilistic Robotics • Aerial

### 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

## ENGINEERING EXPERIENCE

### DYSON ROBOTICS LAB | UNDERGRADUATE RESEARCH ASSISTANT

Jan 2017 - Present | Imperial College London

SLAM and Virtual Reality based drone navigation

- Working under the supervision of Dr Stefan Leutenegger

- Developing Computer Vision based localization for a quadcopter

### AERIAL ROBOTICS LAB | UNDERGRADUATE RESEARCH ASSISTANT

June 2015 - Jan 2017 | Imperial College London

Built a Walking Hexapod Quadcopter that can both walk and fly

- Developed Inverse Kinematics walking algorithm in C++ for ARM mbed

- Created a mathematical model and developed simulation using OpenCV

- Developed a library for Dynamixel servo motors and integrated ROS actions

- Mini demo at [nikonikolov.com/portfolio/wkquad.html](http://nikonikolov.com/portfolio/wkquad.html)

- Currently writing an academic paper

### ARM LTD | HARDWARE ENGINEERING INTERN

July 2016 - Sep 2016 | Sheffield, UK

Developed a full-scale transaction logger for a System Memory Management Unit

- Designed custom language to automate integration for any kind of chip

- Implemented in Python a compiler to System Verilog compiler for the custom language

- Decreased debug time by 50%; currently used by the whole team of 20

## PROJECTS

### EUROBOT 2017 ROBOTICS COMPETITION

Ongoing | Imperial College London

Technical leader of Imperial College team for the Eurobot international competition.

- Building a robot to recognize and collect objects and construct a moon base from them

- Work involves ROS, OpenCV, Embedded Systems, Localization

### DRONE DELIVERY SYSTEM

Ongoing | Providence, RI, US

Raspberry Pi-operated DJI M-100 to deliver food in Brown University

### HACKZURICH

2016 | Zurich, Switzerland

Built Android image-processing and OCR based app that can scan grocery receipts to keep

track of fridge contents. Used OpenCV and Google OCR API

### UK NAO HACKATHON

2016 | London, UK

Deployed functionality on Pepper robot to recognize an object using Clarifai API and

pronounce the name of the object in any language

### IC HACK

2016 | London, UK

Built a cloud-based app to detect the number of free parking spaces based on aerial images.

Used OpenCV and Google Vision API.

### COURSEWORK

- 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 configuration that tracks human eye movements

### ROS FOR SLACKWARE

Open-source contribution to ROS and SlackBuilds.org to enable ROS on Slackware Linux

### EUDYPTULA CHALLENGE

Currently Level 4 of the Linux Kernel Eudyptula Challenge

## EXTRACURRICULAR ACTIVITIES

IMPERIAL ENTREPRENEURS - VICE PRESIDENT

2015-2016

AIKIDO - 1ST DAN BLACK BELT

2007 - Present

STARTUP "MAPP IT" - CO-FOUNDER

2013 - 2014

ROTARACT CLUB "VARNA-EUXINOGRAD" - TREASURER

2012-2014