

# MARTIN ANDREEV ASENOV

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## EDUCATION

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**The University of Edinburgh and Heriot-Watt University**

Sep 2017 - Present

*Ph.D. in Robotics and Autonomous Systems*

- “Architectures for Online Simulation-based Inference Applied to Robot Motion Planning”
- Supervised by Prof. Subramanian Ramamoorthy and Dr. Kartic Subr

**The University of Edinburgh**

Sep 2016 - Aug 2017

*MRes in Robotics and Autonomous Systems*

- “Active Sensing of Spatiotemporal Phenomena with a UAV”
- Supervised by Prof. Subramanian Ramamoorthy

**The University of California, Irvine**

Sep 2014 - Jun 2015

*International Exchange Student*

- Favorite courses: Neural Networks and Deep Learning, Image Understanding, Computer Photography and Vision

**The University of Edinburgh**

Sep 2012 - May 2016

*BSc (Hons) Artificial Intelligence and Computer Science*

- “Dynamic Model of Interactions Between Orientation Selective Neurons in Primary Visual Cortex”
- Supervised by Dr. Mark van Rossum

## PUBLICATIONS

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*Vision-Based System Identification and 3D Keypoint Discovery using Dynamics Constraints*, M. Jaques, M. Asenov, M. Burke, T. Hospedales, **NeurIPS Workshop on Physical Reasoning and Inductive Biases for the Real World**, 2021

*Inversion of Ultrafast X-ray Scattering with Dynamics Constraints*, M. Asenov, N. Zotev, S. Ramamoorthy, A. Kirrander, **NeurIPS Workshop on Machine Learning and the Physical Sciences**, 2020

*Vid2Param: Modelling of Dynamics Parameters from Video*, M. Asenov, M. Burke, D. Angelov, T. Davchev, K. Subr, S. Ramamoorthy, **IEEE Robotics and Automation Letters (RAL)**, Vol 5(2): 414-421. Presented at the IEEE International Conference on Robotics and Automation (ICRA), 2020

*Active Localization of Gas Leaks using Fluid Simulation*, M. Asenov, M. Rutkauskas, D.T. Reid, K. Subr, S. Ramamoorthy, **IEEE Robotics and Automation Letters (RAL)**, Vol 4(2): 1776-1783. Presented at the IEEE International Conference on Robotics and Automation (ICRA), 2019

*Autonomous Multi-species Environmental Gas Sensing using Drone-based Fourier-transform Infrared Spectroscopy*, M. Rutkauskas, M. Asenov, S. Ramamoorthy, D.T. Reid, **Optics Express**, 2019

*Active Sensing of Spatiotemporal Phenomena with a UAV*, M. Asenov, **MSc thesis**, The University of Edinburgh, 2017

*Dynamic Model of Interactions between Orientation Selective Neurons in Primary Visual Cortex*, M. Asenov, **BSc thesis**, The University of Edinburgh, 2016

## WORK EXPERIENCE

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### **The University of Edinburgh**

*Teaching Assistant and Tutor*

Sep 2019 - Dec 2019

*Edinburgh, UK*

- Prepared materials for 8 tutorials for Computer Graphics
- Guest Lecture on 'Graphics simulators in robotics'

### **Amazon, PrimeAir**

*Research Applied Scientist*

Oct 2018 - Dec 2018

*Graz, Austria*

- Worked on image segmentation from limited data using domain adaption

### **Defense Science and Technology Laboratory**

*Research Assistant*

Nov 2017 - Sep 2018

*Edinburgh, UK*

- Collaboration with Heriot-Watt University, BMT and REDALERT, extending on the stage one project
- Data driven fluid simulation approach to characterize gas dynamics

### **Defense Science and Technology Laboratory**

*Research Assistant*

Jan 2017 - Jun 2017

*Edinburgh, UK*

- Stage one funded project for detecting and mapping hazardous gases
- Collaboration with Heriot-Watt University, developing a UAV-mounted broadband spectrometer
- Implementing active sensing gas localization and mapping approaches based on Gaussian Processes

### **The University of Edinburgh**

*Tutor*

Jan 2016 - May 2016

*Edinburgh, UK*

- Prepared materials and conducted 9 tutorials for Object-Orientated Programming
- Tutored the Advanced tutorials for the course, answered and helped with additional questions

### **Thales Avionics**

*Software Integration and Characterization Developer*

Jul 2015 - Aug 2015

*Irvine, California, USA*

- Extended the Google's Blockly visual programming editor to a test automation tool
- Assisted in training a support vector machine, able to estimate performance tests, without running them

### **Avid Academy for Gifted Youth**

*Math Tutor and Web Developer*

Dec 2014 - May 2015

*Irvine, California, USA*

- Prepared students for the AIME and AMC math competitions
- Developed educational-focused web content management system using Django

### **Edinburgh University Students Association**

*Web Developer and IT Infrastructure Technician*

April 2014 - Aug 2014

*Edinburgh, UK*

- IT support for more than 30 venues during Edinburgh Fringe, the largest art festival in the world
- Developed web content management system using Django, participated in all phases of websites development cycle
- Web server management, including recovering after our servers were compromised

### **Commquest Ltd**

*Junior Programmer*

Jun 2013 - Jul 2013

*Sofia, Bulgaria*

- Developed crossword game for the iPhone using Objective-C
- Developed Android game using PhoneGap

## POSITIONS OF RESPONSIBILITY & EXTRA CURRICULAR

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### Resident Assistant

Sep 2015 - Aug 2018

- Organized more than 17 events per year, helped students with any academic or personal matter

### Representational Roles

Sep 2012 - Current

*Student Ambassador, Cohort Student Representative, Informatics School Representative, etc.*

- Collecting students' feedback, organized Informatics Ceilidh for more than 200 students
- Toured potential informatics students

### EdIntelligence Committee Member

Sep 2017 - Current

- Helped to organize events such as career fairs, lectures, movie screenings, etc.; maintaining the website

### Bulgarian National Dances

Sep 2013 - Current

- Took part in numerous semi-professional events: International Evening, 6th Syn Festival Baharat-Spices of Eastern Music, 33th and 34th Annual University of Edinburgh Dance Performance, Concert 'Bulgarians from New Times', Concert for the Liberation Day of Bulgaria

### Cycling

April 2019

- Cycled all around Scotland, took part in 256 miles bike ride with Mark Beaumont, raising 400£

## TALKS

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### Robot Learning Using Physics-Informed Models

18th of October, 2019

*Guest Lecture, Computer Graphics, The University of Edinburgh*

### Gaussian Processes. Theory and Applications

8th of March, 2017

*Open Tech Meetup, Skyscanner, Edinburgh, UK*

### Gaussian Processes - When Neural Networks are not Enough

29th of July, 2017

*SoftUni, Sofia, Bulgaria*

## AWARDS

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**Best Case Study**, Edinburgh Robotics Annual Conference

8th October, 2019

**Principal's Go Abroad Fund**, attended Open Source Conference in Hong Kong

June, 2016

**Gold Medal**, Scottish Boat Race

28th May, 2016

**Silver Medal**, BUCS Regatta

1st May, 2016

**Dean's Choice Award**, UAV Forge: Innovation for Personal Autonomous Systems

March, 2015

**Award for best UI**, Smart Data Hack

Feb, 2013

## SKILLS

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### Languages

Bulgarian (native), English (fluent)

### Leadership

Team leader of more than 50 students for building an autonomous quadcopter

### Cross-cultural

Lived in UK, USA, Austria and Bulgaria. Travelled to more than 20 countries