Raluca Scona, PhD

2F1 19 Marchmont Crescent, Edinburgh, UK, EH9 1HL

+44 7742 254777 • r.scona@imperial.ac.uk

Education

- **PhD in Robotics and Autonomous Systems** — **Edinburgh, UK**
  The University of Edinburgh and Heriot-Watt University — *2015–2019*
  Thesis Title: Robust Visual SLAM Using Sensor Fusion and Motion Segmentation
  Supervisors: Dr. Maurice Fallon, Prof. Yvan R. Petillot

  - **Visiting Researcher** — **Munich, Germany**
    Technical University of Munich — *Apr–Oct 2017*
    Supervisor: Prof. Daniel Cremers

- **MSc by Research in Robotics and Autonomous Systems** — **Edinburgh, UK**
  Heriot-Watt University — *2014–2015*
  Grade: Distinction

- **BSc (Honours) Artificial Intelligence** — **Edinburgh, UK**
  The University of Edinburgh — *2009–2013*
  Grade: First Class Degree

Publications

- **StaticFusion: Background Reconstruction for Dense RGB-D SLAM in Dynamic Environments**
  Raluca Scona, Mariano Jaimez, Yvan R. Petillot, Maurice Fallon, Daniel Cremers
  International Conference on Robotics and Automation (ICRA) 2018

- **Direct Visual SLAM Fusing Proprioception for a Humanoid Robot**
  Raluca Scona, Simona Nobili, Yvan R. Petillot, Maurice Fallon
  International Conference on Intelligent Robots and Systems (IROS) 2017

- **Overlap-based ICP Tuning for Robust Localization of a Humanoid Robot**
  Simona Nobili, Raluca Scona, Marco Caravagna, Maurice Fallon
  International Conference on Robotics and Automation (ICRA) 2017

  Pre-prints and videos: `www.edinburgh-robotics.org/students/raluca-scona`

Academic Experience

- **Teaching: System Design Project** — **Edinburgh, UK**
  The University of Edinburgh — *2018*

  - Mentored two teams of undergraduate students in designing and building an assistive robot

- **Member of WiRE:** Supporting female PhD students in Robotics

- **Reviewer:** ICRA 2019, ICRA 2020, RA-L

Work Experience

- **Dyson Research Fellow** — **London, UK**
  Imperial College London — *Since March 2020*
  - Research for real-time visual SLAM systems under Prof. Andrew Davison

- **Computer Vision Research Intern** — **Seattle, USA**
  NVIDIA Corporation — *January - July 2019*
  - Research for a semantic real-time Computer Vision project within the Robotics Research Lab headed by Prof. Dieter Fox

- **Systems/Software Engineer** — **Cambridge, UK**
  HP Autonomy — *2013–2014*
  - Task: Front-end user interface design and back-end development for a web-based application
  - Part of a 5-person team organised within an Agile framework

- **Programming Intern** — **Coleraine, UK**
  The University of Ulster — *Summers of 2011, 2012*
  - Task: Implemented a metaheuristic algorithm in Java to fit parameters to a mathematical model of gene regulatory networks
  - Resulting publication:
    MultiGrain/MAPPER: A distributed multiscale computing approach to modeling and simulating gene regulation networks. Alexandru E. Mizeranschi, Martin T. Swain, **Raluca Scona**, Quentin Fazilleau, Bartosz Bosak, Tomasz Piontek, Piotr Kopta, Paul Thompson, Werner Dubitzky (*Future Generation Computer Systems*, 2016)

Skills

Computer Vision

I implemented robust perception systems to enable autonomous capabilities in mobile robots. In my PhD I have worked on the problem of SLAM (Simultaneous Localization and Mapping), with a focus on:

- 3D Computer Vision, particularly Visual Odometry and 3D Reconstruction
- Sensor Fusion techniques which combine vision with inertial or kinematic data

I also have experience in Deep Learning, specifically applying existing supervised learning approaches to problems including semantic segmentation and object pose estimation.

Development

- **Programming Languages:** C++, Python, Java, MATLAB
- **Robotics Development:** ROS, OpenCV, Eigen, PyTorch, Vicon Motion Capture
- **Version Control:** Git