Roman Michalec
French national, applying for British citizenship
Right to work in the UK

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Glasgow, Scotland

Experience

2023 – 2024 **PicSea Ltd.**, Edinburgh
Robotics Software Engineer/IT Systems Manager

Set up and maintained the onboard computers of the organisation's autonomous underwater vehicles and instrumented buoys. Maintained and extended the custom software running on those systems. Redesigned core network systems to enable seamless communication between multiple sites. Participated in field trials and deployments at customer sites. Mentored a software engineer.

2017 – 2023 **University of Strathclyde**, Glasgow
Scientific Software Engineer/Research Associate

Developed and helped coordinate the development of a software framework for sensor data fusion in planetary and orbital robotics, in the context of coordinated European research projects in space robotics. Participated in experimental validation at the German space agency and in a Mars analogue site in the Sahara desert.

Maintained and developed software for ultrasound data visualisation in automated non-destructive testing of composite materials. Developed software for assessing ship vulnerability to flooding, in the context of two European research projects on ship safety involving more than 15 partner organisations each. Organised the leading international conference in the field, attended by 300 delegates.

2013 – 2015 **Georgia Institute of Technology** and **CNRS**, France
Research Assistant

Developed terrain-based, sidescan sonar based navigation algorithms for autonomous underwater vehicles, for a European research project on underwater robotics.

2007 – 2011 **Atomic Energy Commission**, France
Ph.D. Candidate

Developed physics-based control algorithms for autonomous, multifingered, dexterous manipulation with humanoid robot hands, for applications in robotics and virtual reality.

Education

2007 – 2011 **Ph.D. in Robotics**, Pierre and Marie Curie University and Atomic Energy Commission

2006 – 2007 **M.S. in Computer Science**, University of Paris-Sud
Virtual and augmented reality, statistical data analysis.

2004 – 2007 **M.S. in Engineering**, ENSTA Paris
Applied mathematics and computer science: probability theory, mathematical programming, control theory, robotics, image processing, computer graphics, software engineering.

Software skills

Programming	Python, C/C++, Bash	Software frameworks	ROS, Qt
Data analysis	NumPy, Pandas, Matplotlib, MATLAB	Operating systems	Ubuntu Linux, Raspberry Pi
CI/CD	GitLab pipelines, Docker, Cppcheck	Tools	Git, Python packaging, LaTeX

Additional experience

Generative AI — I work as an expert contractor for an artificial intelligence company. I engineer prompts in STEM fields and in computer programming and I evaluate model responses to help build specialized, large-scale, high-quality training datasets for in-development large language models.

Research support — I help run software development clinics at the University of Strathclyde where researchers find support with programming problems and associated issues.

Sport — I am an experienced lacrosse referee and have been officiating national league matches in Scotland and tournaments in England for four years.

Selected publications and presentations

IMDC 2022	*A multi-level approach to flooding risk estimation of passenger ships*. Dracos Vassalos et al. International Marine Design Conference. Vancouver, BC, Canada, June 2022.
STAB&S 2021	*A computer program for lifecycle flooding risk assessment according to the FLARE Framework process*. Romain Michalec et al. International Conference on the Stability and Safety of Ships and Ocean Vehicles. Glasgow, Scotland, June 2021.
IJARS 2020	*Common Data Fusion Framework: an open-source common data fusion framework for space robotics*. Raúl Domínguez et al. International Journal of Advanced Robotics Systems, Mar. 2020.
RSEConUK 2019	*"It works on my machine": working as a research software engineer in a multi-partner international research project*. Romain Michalec et al. Conference of Research Software Engineers. Birmingham, England, Sept. 2019.
ASTRA 2019	*Data fusion framework for planetary and orbital robotics applications*. Shashank Govindaraj et al. Symposium on Advanced Space Technologies in Robotics and Automation. Noordwijk, the Netherlands, May 2019.
IAC 2018	*InFuse data fusion methodology for space robotics, awareness and machine learning*. Mark Post, Romain Michalec et al. International Astronautical Congress. Bremen, Germany, Oct. 2018.
i-SAIRAS 2018	*A common data fusion framework for space robotics: architecture and data fusion methods*. Raúl Domínguez, Romain Michalec et al. International Symposium on Artificial Intelligence, Robotics, and Automation in Space. Madrid, Spain, June 2018.
OCEANS 2014	*Sidescan sonar aided inertial drift compensation in autonomous underwater vehicles*. Romain Michalec and Cédric Pradalier. MTS/IEEE Oceans. St. John's, NL, Canada, Sept. 2014.
Ph.D. dissertation	*Modeling and control of multifingered dextrous manipulation for humanoid robot hands*. Romain Michalec. Ph.D. thesis. Fontenay-aux-Roses, France, Dec. 2011.
HUMANOIDS 2010 *Best Paper Finalist*	*Stiffness modeling for multifingered grasping with rolling contacts*. Romain Michalec and Alain Micaelli. IEEE/RAS International Conference on Humanoid Robots. Nashville, TN, USA, Dec. 2010.
IROS 2009	*Optimal tightening forces for multifingered robust manipulation*. Romain Michalec and Alain Micaelli. IEEE/RSJ International Conference on Intelligent Robots and Systems. St. Louis, MO, USA, Oct. 2009.
SYROCO 2009	*Dynamic optimization-based control of dextrous manipulation*. Romain Michalec and Alain Micaelli. IFAC International Symposium on Robot Control. Gifu, Japan, Sept. 2009.