CONTACT

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EDUCATION

PhD Machine Learning/AI
University of Portsmouth, UK
2010

MSc Machine Learning/AI
University of Aberdeen, UK
2007

BSc: Computer Science
University of Aberdeen, UK
2005

TECHNICAL SKILLS

- **Expert at modelling the cascading failure of critical infrastructure services**
- **Expert in decision Support Systems**
- **Expert in Interactive Visualizations & Serious Gaming**
- **Background in AI and Machine Learning**
- **Comprehensive experience in Software and Web programming (Rust, Python, C/C++, C#, Julia, JavaScript…)**

MEHDI KHOURY

FOUNDER, CEO, AND TECHNICAL LEAD AT RAMPARTS & LIGHT

PROFESSIONAL OVERVIEW

With the insight and benefits of 18 years of applied research at the master, doctorate, and post-doctorate level on different relevant subjects, I am now starting a new adventure as CEO and founder of Ramparts & Light. I am well prepared to provide a technical solution to the problem of anticipating the cascading failure of critical infrastructure services in the context of climate change, and I also have experience as a consultant tackling the problem of stakeholder engagement with digital tools (such as serious games) in order to improve preparedness.

WORK EXPERIENCE

CEO, and Technical Lead
Ramparts & Light Limited, Southampton, UK — 2025- Present

Responsible for product design, software implementation, sales, and customer service.

- Developed a high-performance simulation engine from the ground up using a new proprietary algorithm in the Rust programming language and applied it to three complete case studies (Canary Islands of El Hierro, La Palma, & Gran Canaria).
- Extended customer base in first month of activity to two regions of Spain (Canary Islands, Castilla y Leon) and presently exploring other European prospects.

Expert Evaluator for the European Commission (Civil Security for Society)
European Commission, Brussels — 2024- Present

As a listed expert from the European Commission, I am sometimes called to participate in the evaluation of Horizon research project grant proposals linked to the modelling of critical infrastructure services, and AI. The last call was “Disaster-Resilient Society 2024”.

Senior Research Fellow
University of Exeter, UK — 2016- 2025

Responsible for conducting research activity within several Horizon European projects (SIM4NEXUS, NEXTGEN, ARSINOE, NATALIE). Day-to-day activities include overall technical design, programming, team coordination, writing of reports and scientific publications, interactions with stakeholders, presentations to conferences, workshops, and at European Commission evaluation meetings).

- Research in Modelling the cascading failure of Critical Infrastructure services - creation a proof-of-concept engine in the Julia programming language applied to three case studies (UK coastal town, Island of Tenerife, East of Iceland) within Horizon European Commission research projects (NATALIE & ARSINOE).
- Research in decision support systems and serious games applied to water distribution systems, flood modelling and risk management (SIM4NEXUS & NEXTGEN).

ACHIEVEMENTS

Royal Academy of Engineering President's Special Award for Pandemic Service 2020
(for exceptional engineering achievements in tackling COVID-19).

Winner "EUvsVirus" hackathon 2020
(one of 6 winning prizes over 2160 submitted solutions): Sewers4COVID European Commission

Winner of "Haquathon" 2017 (better leak detection through real time consumption and visualization)

Winner of Open Data Hack 2017
(Drinkable water shortage visualization/prediction from weather data)

LANGUAGES

English

French

Spanish

- Designed and developed interactive 3d flood visualizations, as well as single and multiplayer online serious games.
- Designing and teaching a new "Serious Gaming" course for Master students in Water engineering on how to make their own interactive visualizations and serious games using JavaScript and web frameworks.

Research Associate
Imperial College London, UK 2015- 2016

On-line interactive visualizations and data analysis of health effects at the population level following exposure to environmental, behavioral, nutritional, and metabolic risk factors. [JavaScript, D3js, Three.js]

Research Fellow
University of Surrey, Guildford, UK 2013- 2015

Creation of online 3d interactive models of dynamic simulations of molecular interaction networks describing gene regulation, signaling and whole-cell metabolism. [Julia, Python, JavaScript, WebGL, Node.js, D3js, Three.js, Sails.js, Socket.io]

Research Fellow
Southampton University, Southampton, UK 2011- 2013

Modelling the resilience of complex interdependent transport and energy infrastructure systems to cascading failure. [C, C++, Irrlicht Engine, Python, NetworkX, IRIDIS supercomputer, NVIDIA CUDA GPU parallel computing]

Research Programmer (casual contracts)
University of Portsmouth, Portsmouth, UK 2010- 2011

- Built an application that calls different emulators to use archived software in the context of the KEEP European Project. [C/C++, Qt]
- Programming a multi-criteria decision-making optimization algorithm in Visual Basic for Professor Alessio Ishizaka in Portsmouth Business School. [Visual Basic - Excel].

Guest Lecturer/ Course Demonstrator
University of Portsmouth, Portsmouth, UK 2009- 2010

Demonstrator for an introductory course to video game programming in C++. Guest lecturer in AI for Video Gaming.

Computing Officer
University of Aberdeen, Aberdeen, UK 2005- 2007

This goes from hardware and software installation and maintenance to user's assistance and network administration.

Warden in Student Halls
University of Aberdeen, Aberdeen, UK 2005- 2007

Night shifts dealing with security, fire safety, medical emergencies, and student support in general.