

CHARALAMBOS ROSSIDES (HARRY)

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SUMMARY

- Passionate **control engineer** with experience in medical signal processing for commercial **medical devices**.
Applying science for good reason matters to me!
- Having a broad scientific and engineering background, I combine ideas from **diverse disciplines** to design and implement **innovative algorithms** and methods.
- Effective communicator of complex ideas to interdisciplinary and lay audiences. **Team-player and inspiring leader** with extensive experience in detailed planning and leading small groups of people during days of experimental procedures.

Keywords: Advanced signal processing / Optimisation / Intelligent control / Research & Development

EDUCATION

- JAN. 17 - MAY 21 **PhD in engineering and physical sciences**
Bio-engineering group, Faculty of Engineering and Physical Sciences,
University of Southampton, UK
Thesis: “Development of 3D X-ray phase-contrast imaging and analysis tools for tubular and branching structures with applications in colorectal cancer research.”
SUPERVISORS: Philipp Schneider, Sylvia Pender
- AUG. 14 - AUG. 16 **MSc in Systems and Control**
Robotics and Mechatronics dpt., *University of Twente*, The Netherlands
Thesis: “Design and implementation of a modular, customisable, multi-modality compatible actuator with position feedback.”
- JUN. 09 - JUL. 14 **MEng in Electrical and Computer Engineering**
National Technical University of Athens, Greece
Specialised in automation and control / robotics
Thesis: “Mobile robot navigation through an unknown environment towards a predefined target.” Joint affiliation with *NCSR Demokritos*.

WORK EXPERIENCE

- JAN. 21 - PRESENT **Algorithm engineer (*Radii Devices*, Bristol, UK - remote)**
• Developing mesh morphing algorithms in C++ for prosthetic and orthotic devices.
- MAR. 20 - PRESENT **Senior research assistant (μ VIS X-ray imaging centre, University of Southampton)**
• Developing advanced signal-processing and sensor fusion methods, including super-resolution imaging, X-ray metrology and scatter reduction, for laboratory-based computed-tomography.
- SEP. 19 - MAR. 20 **Research assistant (μ VIS X-ray imaging centre, University of Southampton)**
• Developed advanced X-ray imaging and signal-processing methods, including tilted-angle laminography and scatter reduction, for non-destructive examination of jet-engine parts for Rolls-Royce.
- JAN. 18 - SEP. 20 **Demonstrator (*3D printing workshop*, University of Southampton)**
• Assisted students to use the 3D printers in the prototyping workshop. Social and communication skills, ability to quickly propose solutions to simple problems and facilitate the work of others were gained from this activity.
- SEPT. 15 - OCT. 15 **Teaching Assistant (*Bio-robotics course*, University of Twente)**
• Assisted and supervised groups of students during workshop sessions of the module of multi-body dynamics and control for the bio-robotics course.
- SEPT. 15 - DEC. 15 **Intern (*DEMCON Advanced Mechatronics*, Enschede)**
• Developed a physiological model of the human finger. I conducted biomedical signal analysis, modelling, system identification and mock-up simulation aiding in the development of the *Nanocore* portable blood pressure monitor, produced by *DEMCON* for *FINAPRES*.
- JUL. 07 - JUL. 09 **Private soldier (*Cypriot National Guard*, Cyprus)**
• Director of weapon storage and personnel management office assistant.

Last updated on May 12, 2021

KEY COMPETENCIES

Working in a healthcare start-up company

Working in a small university spin-out I learned how to be flexible and adaptive in an ever-changing and challenging environment. Effective time-management, working in a team, and switching between roles are key competencies learned.

Medical wearable device design

Experience in the development cycle of a commercial portable medical device (*FINAPRES Nanocore*) for noninvasive blood pressure monitoring. I modelled, implemented, calibrated and deployed in an embedded micro-processing system a physiological model of the human finger. My model, which was used to test and further develop the *Nanocore*, **enabled the company to certify the the device** through *in-silico* experiments, **reducing the time-to-market by several months**.

Strong theoretical & practical background in electronics

Extensive experience in both analogue and digital electronic synthesis and design:

- Advanced electronics, Linear circuit design, Analogue circuit synthesis and design
 - Logic design, VLSI design, Advanced computer architecture, Embedded systems design
- All modules included both theoretical and laboratory components, with hands-on experience in PCB design, soldering and testing.*

Strong mathematical and computing skills

My background covers the entire range from electronic design, computer architecture, algorithm design and implementation. I specialised in electronics, signal processing (including digital filtering), optimisation and intelligent control. Thus, I have a clear picture of the challenges of both high & low level implementation of complex ideas, involving mathematical derivation, software development and hardware implementation.

High impact outcomes

Detailed planning and forward thinking demonstrated by three successful proposals for beamtime at world-leading synchrotron facilities (Diamond Light Source, Swiss Light Source), accomplishing access through competitive routes, with a total financial worth estimated upwards 90K GBP.

Supervision and executive skills

Interpersonal skills, ability to provide (scientific) guidance, working in an executive panel and communication skills, gained by being involved in the supervisory team of (three) undergraduate students performing their 3rd year *individual project*.

Leadership and management

Strong leadership and teamwork skills, managing small groups of researchers during days of overnight use of synchrotron equipment. With meticulous planning, ability to make decisions under pressure and fatigue, and effective problem-solving on the spot, we managed to make the most out of the available resources and successfully perform our experiments.

Written & verbal skills

Excellent communicator, with more than ten oral presentations in local, national and international conferences, three scientific papers, two 1st place awards (best scientific poster & best computed-tomography image) and three awarded synchrotron beamtime proposals. Having an interdisciplinary audience for my PhD work, I learned how to effectively communicate with biologists, engineers and physicists to bridge the gap between the different disciplines and convey my key message.

BACKGROUND

Multi-variable control system design, Optimisation techniques and control applications, Engineering system dynamics, **Modelling and simulation**, System engineering, **Pattern recognition**, Computer Vision, **Neural networks and intelligent Systems**, Advanced computer architecture, **Parallel processing systems**, Artificial intelligence, **Machine learning**, Embedded systems design, **Advanced circuit theory**, Advanced electronics synthesis and design.

SKILLS

LANGUAGES:	Greek (mother tongue), English (fluent), German (basic)
GENERAL:	Highly abstract thinking , Quick with new prog. languages, Deep theoretical background , Good communicator, Responsible , Empathetic & Supportive
PROGRAMMING:	C/C++ , PYTHON, openMP, MPI, CUDA, Matlab/Simulink , Wolfram Mathematica , {8085, 8086, AVR, MIPS, ARM} ASSEMBLY
DESIGN TOOLS:	FreeCAD , 20SIM, IBM Rtl Rhapsody , MAYAVI
MISC.:	GNU/LINUX, Fiji/ImageJ jython scripting, Amira/Avizo , VGstudio Max