

# HORIA ALEXANDRU MAIOR

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## EDUCATION

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### University of Nottingham, UK

2012-2017

Multidisciplinary PhD Researcher at the Mixed Reality Lab & Computer Science

Horizon Digital Economy Research Centre for Doctoral Training

Thesis: “*Real-Time Physiological Measure and Feedback of Workload using fNIRS*”

### Swansea University, UK

June 2012

B.Sc. in Computer Science

Dissertation: Modelling and Simulation of Railways Signalling “*Safe Trains - a CSP Approach*”

Award: First class honours degree

## RESEARCH INTERESTS

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### Brain and Physiological data use for Human Computer Interaction

My research lies in the intersection between Human-Computer Interaction (HCI), Brain-Computer Interface (BCI), and Human Factors. I am looking into the integration of non-invasive brain and physiological sensors, such as functional Near Infrared Spectroscopy (fNIRS), in the field of HCI. More specifically, I am interested in how we can use such devices to sense physiological responses to human cognition and mental workload, and use this continuous, quantitative measure, as an additional channel of information about the user during interaction.

- Papers presented at CHI2016, NeuroErgonomics2016, CHI2015, CHIPLAY2015, CHI2014, IEEE RAS 2014, EHF2014.
- Involved in the Academic Review process for multiple conferences - Associate Chair at ACM-CHI 2017, ACM-CHI 2016, UIST 2016, ACM-CHI 2015, ACM-CHIPLAY 2014, IEEE CASE 2014, IiX2014.
- Memberships - Association for Computing Machinery (ACM), Chartered Institute of Ergonomics and Human Factors.

## PUBLICATIONS

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### *Peer reviewed Conference Papers, Journal Papers*

- **Maier, H.A.**, Wilson, M.L., Sharples, S. *Workload Alerts - Using Physiological Measures of Mental Workload to Provide Feedback during Tasks*. (Under Review) ToCHI2017 Transactions on Computer-Human Interaction.
- Muralidharan, A., **Maier, H.A.**, and Rao, S. *A self-governing and decentralized network of smart objects to share electrical power autonomously*. (2016) IN PRESS: Springer Open Journal on Infrastructure Complexity.
- Lukanov K., **Maier, H. A.**, and Wilson, M. L. *Using fNIRS in Usability Testing: Understanding the Effect of Web Form Layout on Mental Workload*. In: CHI'16 ACM SIGCHI Conference on Human Factors in Computer Systems, San Jose, California, May 2016.(Acceptance rate 20%)
- **Maier, H. A.** Pike, M., Wilson, M. L., and Sharples, S. *Examining the Reliability of Using fNIRS in Realistic HCI Settings for Spatial and Verbal Tasks*. In: CHI'15 ACM SIGCHI Conference on Human Factors in Computer Systems, Seoul, Korea, April 2015. (Acceptance rate 20%)
- **Maier, H. A.** and Rao, S. (2014.) *A Self-Governing, Decentralized, Extensible Internet of Things To Share Electrical Power Efficiently*. In IEEE CASE 2014 International Conference on Automation Science and Engineering, 18th August 2014. Taipei Taiwan.

- Pike, M., **Maior, H. A.**, Porcheron, M., Sharples, S. and Wilson, M. L. (2014). *Measuring the effect of Think Aloud Protocols on Workload using fNIRS*. In: CHI' 14 ACM SIGCHI Conference on Human Factors in Computer Systems, April-May 2014, Toronto. (Acceptance rate 20%)
- **Maior, H. A.**, Pike, M., Wilson, M. L., and Sharples, S. *Continuous detection of workload overload: An fNIRS approach*. In Contemporary Ergonomics and Human Factors 2014: Proceedings of the international conference on Ergonomics & Human Factors 2014, Southampton, UK, April 2014.

#### *Workshop papers, Abstract Papers, Magazine Articles*

- **Maior, H.A.**, Sharples, S., and Wilson, M.L. *Subjective and Objective Methods to Continuously Monitor Workload*. Neuroergonomics 2016: The brain at work and in everyday life, Paris, France 2016.
- **Maior, H.A.**, and Stringer, P. (2015) *The Values of Games for Health and Well Being*. Interdisciplinary Reflections on Games and Human Values - Workshop , The ACM SIGCHI Annual Symposium on Computer-Human Interaction in Play (CHI PLAY), London, 2015.
- **Maior, H.A.**, Wilson, M.L. and Sharples, S. (2015) *fNIRS in Human Factors*. 2FNIRS Workshop, Toulouse, France April 2015.
- **Maior, H.A.**, Pike, M. *Measuring Work Overload*. The Ergonomist Magazine, May 2014.
- **Maior, H.A.**, Pike, M., Wilson, M.L. and Sharples, S. (2013) *Directly Evaluating the Cognitive Impact of Search User Interfaces: a Two-Pronged Approach with fNIRs*. EuroHCIR 2013 Workshop, Dublin, Ireland, August 2013

## TEACHING AND ACADEMIC RELATED EXPERIENCE

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### **Teaching Fellow**

Feb 2017 - present

*Computer Science*

*University of Nottingham Ningbo Campus UNNC*

- Teach Computer Science Subjects at all Levels;
- Develop Course and Exams Materials;
- Develop Computer Science Modules Curriculums;
- Supervise Undergraduate and Postgraduate Students (UK campus);
- Perform Administrative duties as required;

### **Postdoctoral Research Fellow**

Sep 2016 - Feb 2017

*Computer Science*

*Horizon Digital Economy Research Hub, University of Nottingham, UK*

- Wayward Project - This project investigated the use of Computer Science techniques that capture doctors and healthcare professionals' workload in hospitals, in order to learn and improve the out of hours secondary care, tasking and tasking allocation for doctors and medical professionals, and generally the efficiency of out of hours healthcare in the UK.

### **Supervision**

2014-2016

*Student Project Supervision*

*University of Nottingham*

- "Evaluating Mental Workload through Psycho-physiological Measurements using a Sensory Device". Final year Undergraduate project
- "Using fNIRS in Usability Testing: Understanding the Effect of Web Form Layout on Mental Workload". Masters Thesis - HCI Prize for the BEST MASTERS DISSERTATION

### **Guest Lecturing**

Jan 2015 - Feb 2017

*Lectures*

*University of Nottingham*

- Introduction to Computer Programming
- G54MXR Mixed Reality, Lecture: Brain Computer Interfaces for Human Computer Interaction
- G51FSE Introduction to Software Engineering

## Teaching

*Teaching Assistant*

Sep 2013 - Feb 2017  
*University of Nottingham*

- G51FSE Introduction to Software Engineering (Java, Object Oriented Programming) (2015-2016)
- G54PRG Programming, University of Nottingham (C/C++)
- G51CSA Computer Systems Architecture (ARM Assembly Language)
- G51FSE Introduction to Software Engineering (2014-2015)

## Outreach experience

*International Officer for the School of Computer Science*

March 2016  
*University of Nottingham*

- Create campaigns to meet and attract excellent potential undergraduate and postgraduate students to join our Computer Science programmes at Nottingham University.
- Attending universities fairs abroad (<http://en.riuf.ro/>), to present to schools and potential students.

## Student Engagement

*Programming Coach, Programming Contest Organizer*

2012 - 2017

- Every year I get involved in organizing a few programming contests, both, locally (University of Nottingham), and national (UK).
- ACM-ICPC Site Director at UKIEPC2016 and UKIEPC2015 - Nottingham, UK - <http://ukiepc.info/>
- ACM-ICPC Coach at NWERC 2015 (Linkping, Sweden), NWERC 2013 (Delft, Netherlands) - <http://2013.nwerc.eu/>
- Contestant at the 2012 ACM ICPC - NWERC in Bremen, Germany - <http://2012.nwerc.eu/>

## AWARDS, HONOURS AND GRANTS

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### “Helf Elf”

September 2015

*Postgraduate Ingenuity Prize for BEST New Business Idea*

- £5000 prize from CityCare Nottingham.
- £1000 Grant from Santander.
- Co-Founded Healthy Research CIC.

### Research Travel Grants

- £1000 Travel Grant from the School of Computer Science, University of Nottingham. (2016)
- £1000 Travel Grant from the School of Computer Science, University of Nottingham. (2015)
- £800 University of Nottingham - Postgraduate Travel Grant Competition. (2014)

2013 - 2015

### Summer Schools

- Digital Economy Web Science and Big Data Analytics, July 2015.
- Digital Economy Summer School: Digital Revolutions, Oxford, July 2013.

## PERSONAL ATTRIBUTES

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- Excellent Communication Skills;
- Ability to work with others as a team;
- Ability to work collaboratively in a multidisciplinary environment;
- Ability to work effectively in a multi-cultural environment;
- Ability to work to deadlines and to prioritise tasks;
- Ability to play a key, team member role in the department I work for;

## TECHNICAL STRENGTHS

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<b>Computer Languages</b>	Java, JavaScript, AngularJS, PHP, C#, C/C++, MySQL etc
<b>Programming environments</b>	Visual Studio, NetBeans, Eclipse, Webstorm, PHPStorm
<b>Professional Software</b>	Latex Document Writing, Statistics SPSS, Adobe Illustrator
<b>Hardware</b>	EEG, fNIRS Brain Scanner, Arduino, Raspberry Pi

## INDUSTRY WORK EXPERIENCE, INTERNSHIPS, AND VOLUNTEERING

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<b>RatedDoctor.com</b> <i>Chief Technology Officer</i>	Feb 2015 - present <i>Nottingham</i>
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- [www.rateddoctor.com](http://www.rateddoctor.com)
- Online platform to bring patients and specialists doctors together.
- Responsibilities included determining the scope for the project and developing requirements - working closely with the CEO -, project management - working closely with the designers and development team.

<b>ACMCHI Conference on Computer-Human Interaction</b> <i>Student Volunteer at chi4good</i>	May 2016 <i>San Jose, California</i>
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- Getting involved in preparing and helping out with successfully running the top conference in Computer-Human Interaction.
- Duties included coordinating the plenary and other conference talks, preparing materials for Workshops, conference registration, and of course meeting many people and having lots of fun!

<b>IIIT-Bangalore and Horizon Digital Economy Research Hub</b> <i>Research Intern</i>	Jan 2014 - May 2014 <i>Electronic City, Bangalore, India</i>
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- Digital Economy Research based in Bangalore, India.
- Project: The INTERNET of THINGS and the Smart Grid.
- Publication: **Maier, H. A.** and Rao, S. "A Self-Governing, Decentralized, Extensible Internet of Things To Share Electrical Power Efficiently. In *IEEE CASE 2014*"

<b>Invensys Rail and Swansea University</b> <i>Research Intern</i>	June 2011 - Sep 2011 <i>Swansea, UK</i>
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- Modelling Railways Safety using formal language CSP (communicating sequential processes)
- Time simulating capacity of Railways using formal language Timed CSP.

<b>AMPsuite LTD</b> <i>Web developer</i>	Sep 2014 - June 2015 <i>Nottingham</i>
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- Building web-based software tools for Records Label companies across the globe.
- Client-focused, understand client needs.
- Front end, back end - PHP, JavaScript, MySQL, html5.

<b>Amazon.co.uk</b> <i>Warehouse Problem Solver</i>	June 2010 - June 2012 <i>Swansea</i>
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- Coordinating a small team, ensuring the quality of Amazon services
- Dealing with customer enquiries and solve problems