Proceedings

1st Community-based Sustainable Energy Workshop:

Combining wireless systems, smart micro-generation and education

February 15—19, 2016

UFSC Smart Solar Building
Florianópolis, Brazil
http://comse.lisha.ufsc.br

UFSC

Coventry University

BRITISH COUNCIL

Welcome Message

On behalf of the organising committee, it is our pleasure to welcome you to the first Community-based Sustainable Energy Workshop. This is an exciting collaboration between researchers in the UK and Brazil, supported by the British Council and the Newton Fund.

This is the first time ComSe has been run and we are excited by the prospects the workshop holds. The workshop has several objectives:

1. Discuss the latest innovations in renewable sources, home energy monitoring, microgrids, and communities education; cross-pollinate the 3 areas.
2. Develop a research roadmap to bridge technology and education gaps, to enable uptake of community controlled microgrids.
3. Explore culturally appropriate community empowerment and education pathways pertaining to microgrids to enable effective technology adoption.
4. Develop a strategy to demonstrate home/community energy monitoring and decision tools integration with microgrids in a community-based test-bed.
5. Launch a collaborative network through a joint website in which strong applications for collaborative research and activities can be organised.
6. Develop joint proposals scoping for scientific innovation and sustainable and feasible plans for future collaboration.

It is envisaged that the workshop will lead to good international collaborations culminating in successful grant proposals and publications.

Putting together ComSe 2016 has been a huge team effort. We would like to thank a number of people who made this happen: From Coventry University we would like to thank: Dr. James Brusey, Dr John Halloran, Dr Ross Wilkins, Dr Melody Stokes, Mrs Faye Brown. From the Federal University of Santa Catarina: Dr. André Ramos, Dr. Ricardo Rüther, Dr. Giovani Gracioli, and Dr. Jean Martina.

We sincerely hope that you find this inaugural workshop interesting and beneficial in your development as Early Career Researchers. We look forward to many years of fruitful collaboration.

All the best,

Prof. Elena Gaura and Prof. Antônio Augusto Fröhlich

Mentors

Elena Gaura (Coventry University, UK)

http://wwwm.coventry.ac.uk/researchnet/cucv/pages/profile.aspx?profileid=155

Elena received her BSc/MSc in Electrical Engineering in 1989/1991(Technical University of Cluj Napoca, Romania), and her PhD in Intelligent Sensor Systems in 2000 (Coventry University, UK).

She was appointed as inaugural director of the Coventry University's Cogent Computing Applied Research Centre (CCARC) in 2006, a position she held until 2013. In this period, she developed and established CCARC as a world-leading research centre, dedicated to analysis and development of sensing-based socio-technical systems.

The centre has a dual focus: robust, deployable pervasive sensing systems for real-life applications at scale; and effective packages for empowering users to maximise the benefits of those systems.

She was awarded a Professorship in Pervasive Computing in 2009 and, in 2013, she was appointed Associate Dean (Research), a position she continues to hold.

Antônio Fröhlich (Universidade Federal de Santa Catarina, Brazil)

https://www.lisha.ufsc.br/Guto

Dr. Fröhlich received his BSc in Computer Science from the Federal University of Rio Grande do Sul in 1992, his MSc in Computer Science from the Federal University of Santa Catarina in 1994, and his PhD in Computer Engineering from the Technical University of Berlin in 2001.

Dr. Fröhlich has been at the Federal University of Santa Catarina since 1993. In 2001, he became Adjunct Professor for Operating System and soon after director of UFSC's Software/Hardware Integration Lab. In 2009 he was promoted to Associate Professor in the same research line.

Antonio Augusto Fröhlich is an Associate Professor of Operating Systems at UFSC (since 1993) and Head of UFSC's Software/Hardware Integration Lab (LISHA) since 2001. He coordinated a number of R&D projects on embedded systems, run-time support systems, hardware/software co-design, wireless communication, and power management. He has over 132 refereed publications. Major contributions from these projects materialized within the Brazilian Digital Television System (SBTVD) and Wireless Sensor Network technology for energy distribution and precision agriculture. Dr. Fröhlich is member of ACM, IEEE, and SBC. From 2009 to 2011, he led the consortium that developed the Open, Free, Scalable Digital TV Platform ALTATV. From 2011 to 2013, he led a national research network on Smart Cities. Currently, he has four active grants related to WSN, including partnerships with both small and large companies. He chaired the Brazilian Computer Society Interest Group on Computer Engineering.

André Ramos (Universidade Federal de Santa Catarina, Brazil)

After consolidating his scientific career as a Neurobehavioral Geneticist, André has conceived and structured an international program of science popularisation that takes science and technology out of the laboratories and brings them to rural and indigenous communities of different developing countries, including Brazil and in particular the Santa Catarina state. In one of its most remote rural areas, he has already applied a scientific module on Sustainable Energy, including hands-on activities with water, solar and wind generators in an itinerant school where farm working kids study in alternate days. For more information see web presence for Projeto Imagine and related media.

For the workshop, André has invited motivated high-school kids from at least one rural community from a remote region of Santa Catarina, which has high potential for renewable energy use (mostly water and wind based). These teenagers will have already engaged in previous educational activities on Energy. André also intends to use his video producing team to make a documentary about the experience of these children during the workshop. He will organise a community trip as part of the workshop and contribute to all educational initiatives stemming from the event.

John Halloran (Coventry University, UK)

http://www.coventry.ac.uk/research/research-directories/researchers/john-halloran/

John is a human-computer interaction expert with an interdisciplinary background in computer science and psychology. His research has a strong applied focus, currently responding to urgent remits around sustainability. His research is distinctive in concentrating on in-situ analysis of real-world problems, with technology solutions developed in and for the context of use, involving end-users and stakeholders throughout the process. He is highly experienced in user engagement methods including observation, shadowing, interviewing, and surveying. He has a 15-year portfolio of research, funded by sources including EU, EPSRC, ESRC and TSB. In addition, he has a broad range of consultancy experience, with clients including BT and Sabre Europe; which has been published widely in a range of internationally recognised conferences and journals.

Ricardo Rüther (Universidade Federal de Santa Catarina, Brazil)

Dr. Ricardo Rüther is currently professor at UFSC and coordinator of the EC82-1ABNT-Brazilian Association of Technical Standards (Commission of Study Conversion Systems of Photovoltaic Solar Energy). He was founder and first president of ISES Brazil (Brazilian Section of the International Solar Energy Society) and is part of the National Institute of Science and Technology in Renewable Energy and Energy Efficiency in the Amazon (INCT-EREEA).

In the workshop he will impart his expertise in photovoltaics through lectures and hands-on activities. Offering participants to build and operate a solar-powered gadgets (solar boat, solar car, solar pumping system, solar-powered radio, etc). He will Create-awareness of the potential of solar energy conversion in the local energy mix and promote the science on renewables throughout the workshop and contribute to scoping of research questions on their integration with user devices. He will also speak and demonstrate his experience with micro-grids and electric vehicles.

James Brusey (Coventry University, UK)

http://wwwm.coventry.ac.uk/researchnet/cucv/Pages/Profile.aspx?profileID=143

James Brusey received his BAS with distinction and PhD from RMIT University in 1996 and 2003, respectively. Since 2007, James has worked at the Cogent Computing Applied Research Centre, Coventry University in the area of wireless sensor networks. During this period, he has helped to establish Cogent as a world class research centre with a broad portfolio of successful, industry-sponsored projects related to wireless sensor networks. Specifically related to this workshop, he has led the development of Cogent-House, an open-source / open-hardware, easy-to-deploy low-power wireless home monitoring system (including electricity consumption monitoring) that has been deployed in hundreds of homes, some for extensive periods (3+ years). This system also involved the development of systems for web-based data visualisation and system management alerts.

Participants

Prof. Eldar Naghiyev (University of Nottingham, UK)

Sustainable Energy

Academic Career
2015 – now: Research Fellow on **H2020 SENSIBLE (Storage ENabled SustaInable energy for BuiLdings and communitiEs)** project
2014 – now: Research Consultant for **RNE ReinNordEnergie GmbH –** designs, builds and operates wind parks
2014 – 2015: Research Fellow on **InnovateUK EMPower** project – investigated the optimisation of energy generation, storage and consumption at a community level
2012: Research Associate on **E.ON SWITCH (Smart Wireless Integrated Technology Control in Homes)** project
2010: Participated in **Solar Decathlon Europe** project – international university contest to design energy efficient houses that are exclusively powered by the sun
2009 – 2014: University of Nottingham – **PhD in Building and Sustainable Energy Technologies –** Title: "*Device-free Localisation in the context of domestic energy saving control methods*"
2008 – 2009: University of Nottingham – **MSc in Electrical Engineering with Merit** – MSc project: "*Optimal design and implementation of a Ripple Correlation Control based Maximum Power Point Tracker*"
2004 – 2008: Université de Montpellier – **Licence STPI EEA**

Mr. Alec Waterworth (University of Warwick, UK)

Innovation, Management and Policy

PhD (pending viva) in Innovation, Management and Policy at the Manchester Institute of Innovation Research (title: Transforming innovation systems in emerging economies: an evolutionary study of the Brazilian petroleum industry), with a research agenda that focuses on issues of entrepreneurship and governance in an emerging economy's pursuit of one of the greatest technical challenges currently facing the global energy sector: the Brazilian pre-salt. To begin a two-year research fellowship at Warwick Business School in early January 2016. The scope of work for the post is driven by the UK Energy Research Council (UKERC), for which a research will be undertaken in 2016-7. This will focus on the Brazilian energy sector and examine the extent to which the pursuit of the pre-salt is economically feasible given both the drastic fall in the crude oil price and the potentially huge shale gas reserves on shore (which are both easier-to obtain and lower carbon).

Anh Tran (Coventry University, UK)

Chemical Engineering/Humanitarian Engineering

EDUCATIONAL QUALIFICATIONS
2015 PhD in Chemical Engineering, University of Queensland
2002 BE in Chemical Engineering (Honours), University of Queensland
ACADEMIC POSITIONS
2015 - present - Coventry University, Senior Lecturer of Humanitarian Engineering
2011 - 2013 - University of South Australia, Lecturer of Engineering (0.4 fte)
2012 - 2012 - Flinders University, Lecturer of Engineering (0.4 fte)
2011 - 2012 - University of South Australia, Research Assistant (0.6 fte)
GRANTS & AWARDS
2012 Flinders University Executive Deans Grant for the Development of Schools/Community Outreach Resources, Award amount: $3,000
2009 University of Queensland Teaching and Learning Award - The first-year experience for Engineering and Engineers without Borders (EWB) Design Challenge in first Year
2009 BHP Billiton National Community Program Grant for Engineers Without Borders Australia Challenge (EWB Challenge), Award amount: $250,000

Anil Kashyap (Coventry University, UK)

Smart energy/Micro-grids

Dr Kashyap is Deputy Head of School of Energy, Construction and Environment, Coventry University since Sept 2015. Previously he worked with School of Built Environment at the University of Ulster as a academic, Teaching and Learning Director and core faculty on planning and real estate courses since 2003. He is visiting Professor at Royal Agriculture University, Member of the Editorial Board of American Journal of Energy Research, Member of the Royal Town Planning Institute, London, Fellow of the Institute of Town Planners, India, Fellow of the Higher Education Academy, United Kingdom and a Council Member of the International Federation of Housing and Planning (IFHP) representing India. He has also been Professor and Director, School of Real Estate, RICS School of Built Environment from 2013 to 2015.

Dr Kashyap has research interests spanning from low carbon and energy efficient built form, application of smart energy solution to communities, micro-grids, urban regeneration and real estate development and financing. The key strengths are in strategic environment policy making, innovative development management and infrastructure funding mechanisms through his international experience. Dr Kashyap has published a research report on energy efficiency in informal communities' settlements in India in 2009 funded by Royal Institution of Charted Surveyors London.

Mr. Antonio Luque (University of Reading, UK)

Offshore wind energy/Power Management and Control

I had achieved my undergraduate degree on industrial electronics and automatic control engineering at EET in Terrassa, Barcelona on 2007. During 2008-2009, I had also achieved an MsC in sustainable engineering for renewable energy systems at the University of Strathclyde. This master focused on energy production and management (renewable and conventional energies and European energy policies). I have done a second MsC, in the Electronic and Electrical Engineering department at the Institute for Energy & Environment, 2009-2010. This master focused on power system integration, design and protection. I am also in process to achieve (awaiting for my viva) a PhD at the Institute for Energy & Environment. The PhD focuses on offshore wind energy, power control, management and transmission for large offshore wind farms (VSC-HVDC power system).

Dr Augustine Ifelebuegu (Coventry University, UK)

Oil & Gas Management/Petroleum & Environmental Technology

ACADEMIC QUALIFICATIONS OBTAINED:

Ph.D. Wastewater Engineering (Coventry University, United Kingdom)
MSc Water & Wastewater Engineering (Cranfield University, United Kingdom)
MEng Environmental Engineering (University of Port Harcourt)
MSc Chemical Metallurgy & Mineral Processing (University of Port Harcourt)
BSc Industrial Chemistry (University of Benin)

WORKING EXPERIENCES

- Principal Lecturer/Postgraduate Course Director - Oil & Gas, Coventry University, January 2014 to date.
- Senior Lecturer/Postgraduate Course Director, Oil & Gas Management/Petroleum & Environmental Technology, Coventry University, 2008 to 2013.

Dr Bamidele Adebisi (Manchester Metropolitan University, UK)

Smart Grid/ Energy Management/Communication Systems

Senior Lecturer & Head of Communication and Smart System Research [2012 till date]
Visiting Professor, Federal University of Juiz de Fora, Brazil [2013]
Senior Research Associate (Post Doc), Lancaster University, UK. [2009 -2012]
Research Associate, Lancaster University, UK [2005 -2009]

Education:

- PhD Communication Systems, Lancaster University [2005 -2009]
- MSc Mobile Communication Engineering, Lancaster University [2002 – 2003]
- BEng Electrical Engineering, Ahmadu Bello University, Zaria [1993 -2000]

Domenico Balsamo (University of Southampton, UK)

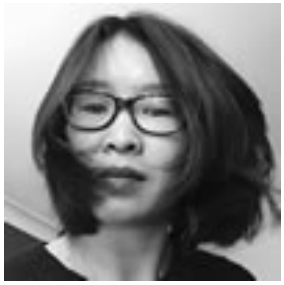
Power efficiency and reliability/Embedded systems

I am working with Dr. Geoff V. Merrett and Prof. Bashir M. Al-Hashimi at the University of Southampton on the PRiME Project, for power efficiency and reliability on many/multi-core heterogeneous embedded systems. My primary contribution in PRiME is on bringing ogether research from different parts of the project and implementing them on a real-world demonstrator. I am also working with Prof. Luca Benini at the University of Bologna, on FLEXMETER project (HORIZON 2020) titled "Flexible smart metering for multiple energy vectors with active prosumers". Moreover, I am involved in a project with Telecom Italia on smart energy harvesting systems for non-intrusive load monitoring in smart building and smart grid scenarios.

Earlier in 2015, I successfully defended my PhD thesis under the supervision of Dr. Davide Brunelli and Prof. Luca Benini. Telecom Italia has funded my PhD on the topic “Energy Efficiency and Energy Monitoring in Smart Buildings”. My thesis focused on ultra-low power
and non-intrusive wireless energy monitoring. During my PhD candidature, I was a visiting researcher at the School of Electronics and Computer Science (ECS), University of Southampton. I have been working with the ECS department on sustaining computation during intermittent supply for power-neutral energy harvesting Internet of Things devices. I have also been involved on 3ENCult project (Efficient Energy for EU Cultural Heritage), focused on designing WSNs for monitoring environmental conditions and energy efficiency in historical buildings. Prior to joining as a PhD candidate in winter 2012, I spent more than two years in a power utilities industry (DKC Conchiglia S.P.A.) as a project manager and power electronics designer. I have published more than 15 papers in top embedded systems conferences and journals

Hong T. M. Bui (University of Southampton, UK)

Organisational Behaviour and Human Resource Management



I received PhD and its funding from the University of East Anglia, UK in 2010 with research on "Creating Learning Organisation in Higher Education: International Comparative Research". I worked as a lecturer at the Bournemouth University in 2010-2013, and have been working as a lecturer in Organisational Behaviour and Human Resource Management at the University of Southampton since 2013. I deliver lectures on Strategic Human Resource Development, and Contemporary Issues in Management.

I have successfully obtained ten research grants and research support institutionally, nationally and internationally; and £230,000 of enterprise incomes mainly via leadership development programmes for Vietnam Government since 2010. My research has been presented in more than 30 conferences, and 10 papers have been published on top ranking journals, e.g., the Public Administration Reviewer, Group and Organization Management, Management Learning, International Journal of Human Resource Management, Asia Pacific Journal of Management, Strategic Change, and the Learning Organisation.

James Nightingale (Imperial College, UK)

Organic Solar Cells

2015 – Present Imperial College
PhD in Physics (Experimental Solid State) where I work on Organic solar cells and their stability against degradation.
2009 – 2012 University of Nottingham
2:1 Chemistry Bsc (Hons) where I worked on DyeSensitised Solar Cells
2007 – 2009 Peter Symonds College, Winchester, Hants
A Levels: Biology (B); Chemistry (B); Physics (B)
AS Levels: Mathematics (B)

Previous Employment
Project Engineer. Chemist – Atmosphere Control International
April 2014 – September 2015
I worked for a marine defence company developing and manufacturing atmosphere control equipment for submarines. The company provide systems and services to the Royal Navy and currently operate on all UK nuclear submarines. We also provide for many foreign Navies. My role as the chemist involves assisting and advising in development projects, running and operating the laboratory, chemical analysis, documentation and technical book writing and corresponding with customers.

Jelte Harnmeijer, CCP (James Hutton Institute, UK)

Renewable Energy/Social Enterprise

Education
2003 – 2010 University of Washington, U.S.A.
Degree: Ph.D. (Earth Systems Science). US$250k grant awarded.
2011 – 2013 University of Edinburgh, United Kingdom
Degree: M.Sc. (Economics), Energy Economics and Finance

Grants & Awards
T.B. Macaulay Fellowship for Renewable Energy, £150k (2014 – 2016)
Business Gateway Growth Pipeline (Awarded 2015)
Geothermal Energy Challenge Fund, £50k (2015)
Business Green Award Nominations for UK Fast-Track Green Company of the Year (2014 and 2015)
Scottish International Development Grants Programme, £70k (2014 – 2018)
Scotland 2020 Climate Group development grant for *Energy Archipelago*, £19k (2014 – 2015)
Outstanding Teaching Award (University of Edinburgh, 2013 / 14)
Edinburgh Centre for Carbon Innovation (ECCI) development grant for *Energy Archipelago*, GB£20k (2012 – 2013)
NASA research grant, US$250k (2002 – 2010)

Lara Schibelsky Godoy Piccolo (Open University, UK)

Smart-grid deployment/Energy Trial

PhD in Computer Science, in the Human-Computer Interaction (HCI) domain, obtained in January 2015 at UNICAMP, Brazil, with the thesis entitled "Motivational Aspects in the Design of Technology for Social Changes".
Master in Computer Science (HCI domain), **awarded** the Best 2008 Master Dissertation on Computer Science by the Institute of Computing at UNICAMP, Brazil.

Computer Engineer from the Catholic University of Campinas, Brazil, in 2000.
Work as a research associate at the Open University in the UK since March 2014. Responsible to setup the **Energy Trial** for the European Project DecarboNet, which relates social media, **communities' engagement and energy conservation** as a way to mitigate climate change.

Previously, in Brazil, worked as a senior researcher at CPqD – Research and Development Centre for almost 10 years. Coordinated and developed R&D activities related to **smart grid deployment** for**:**

- Light (www.smartgridlight.com.br), in the city of Rio de Janeiro.
- Cemig (www.cemig.com.br/smartgrid), in the State of Minas Gerais.
- CELPE, in the Fernando de Noronha Island.

Martin Pullinger (University of Edinburgh, UK)

Socio-technical systems/ Sustainable practices and behaviour change

Academic work experience
University of Edinburgh, School of Informatics. April 2013 - present
Post-Doctoral Research Associate, EPSRC-funded IDEAL and BIGSMALL projects
Lancaster University, Lancaster Environment Centre. January 2012 – March 2013
Post-Doctoral Research Associate, EPSRC-funded ARCC-Water project.

University of Edinburgh
PhD in Social Policy, Sept 2006 – Sept 2011.
MSc by Research in Social Policy (Distinction), Sept 2005 – Aug 2006
'1+3' funded by the UK Economic and Social Research Council
Thesis title: 'Greening our working lives: The environmental impacts of changing patterns of paid work in the UK and the Netherlands, and implications for working time policy'
Scottish Government, Environment Social Research Unit. Funded internship, Jan – Mar 2009
University of Edinburgh
MSc in Ecological Economics, Sept 2000 to Aug 2001

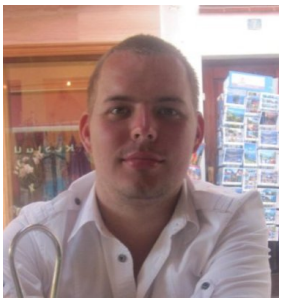
Nervo Xavier Verdezoto Días (University of Leicester, UK)

Computing and Human Computer Interaction

Academic Career:
Lecturer/Assistant Professor, Dept. of Computer Science, University of Leicester, UK. Starting Mar. 2016.
Postdoctoral Researcher, Dept. of Computer Science, Aarhus University, DK. Aug. 2014 – Feb. 2016.
Teacher, Via University College, Horsens, DK. July – August 2014
Visiting Researcher, HCI Group at TU Vienna, Austria. Sept. – Oct.2013 & Mar. 2014
Research Assistant, Centre for Pervasive Healthcare (Cfph), AU, DK. Nov. 2013 – Mar. 2014
Ph.D. Student at the Use, Design and Innovation Group, AU, DK. Nov. 2010 – Oct. 2013
Research intern at -Laboratory for Applied Ontology, Trento, Italy. June – October 2010.
Master student at the University of Trento, Trento, Italy. Degree on October 2010.
Bachelor in Computer Engineering at ESPOL, Guayaquil, Ecuador. Degree on June 2009.

Ross Wilkins (Coventry University, UK)

Wireless Sensor Networks/Internet of Things



Ross was awarded a PhD from Coventry University in 2014 for a thesis entitled "Generalised approaches to transmission reduction protocols in fielded Wireless Sensor Networks". Since 2014, Ross has been employed as a Senior Research Assistant (SRA) within Cogent Labs, Coventry University. In this role his research focuses on low power WSNs in three application areas: buildings monitoring, agritech, and structural health monitoring.

In 2015, Ross was part of a team that developed and was awarded a British Council Institutional Links Grant named PULP-SEED. This grant is helping to build research capacity at the University of San Carlos, Philippines through a real WSN development project within a fruit-drying greenhouse. In addition to the Institutional Grants, a Newton Fund PhD placement has been secured for a faculty member from USC in the area of microgrids, whom Ross will be supervising.

Dr Samuel James Williamson (University of Bristol, UK)

Hydropower generation/off-grid networks/Electrical Machines

Research Assistant, University of Bristol (April 2013 - present)
Projects: Integrity demonstration and reliability assessment of electrical machines; Technology demonstrator for low-head pico-hydropower generation for scalable off-grid networks.

Postgraduate Researcher, University of Bristol (Sept. 2009 - March 2013)
PhD Thesis: Modular and Scalable Low-Head Pico Hydro-Generation for Off-Grid Networks, University of Bristol, 2014 (awarded Faculty of Engineering Commendation)

Technical Advisor - voluntary, PEEDA (Nov. 2008 – present)
Supporting Nepali NGO with technical advice on pico propeller turbines, conducted field visits to understand environment and user needs.

Yi Chu (University of York, UK)

Wireless Sensor Networks

EDUCATION
University of York, York, UK, *2008-2013*
Ph.D. Electronic Engineering, *September, 2013*
Thesis topic: Application of Reinforcement Learning on Medium Access Control for Wireless Sensor Networks
M.S. Electronic Engineering, *September, 2009*
Group Report topic: Data Acquisition in OFDM System with Adaptive Beamforming

RESEARCH INTERESTS

- Developing MAC protocols for energy constraint distributed networks, by considering the requirements of energy efficiency, low complexity and low control packet overheads.
- Implementing cross-layer protocols for distributed networks, to benefit MAC layer scheduling by using topological information, and improve network lifetime by adaptively selecting relay routes.
- Improving the robustness of protocols under unsynchronised conditions, after considering the difficulties and cost for global synchronisation in distributed networks.
- Higher layer techniques for networks using Physical Layer Network Coding (PNC).

Yue Huang, CEng, FHEA (Liverpool John Moores University, UK)

Environmental Management

Employment
Sep.2012-Present: Senior Lecturer in Civil Engineering, Liverpool John Moores University (LJMU)
Mar.2011-Jun.2012: Research Fellow, Nottingham Transportation Engineering Centre, University of Nottingham
Aug.2007-Mar.2011: Research Engineer, Scott Wilson Ltd (now AECOM)

Professional Qualification

- Chartered Engineer, member of the Chartered Institution of Highways and Transportation (CIHT)
- Postgraduate Certificate in Learning and Teaching (PGCert) qualification (2013-14) lead to Fellow of the Higher Education Academy (FHEA)
- CIHT representative on BSI Committee SES/1/5: Environmental Management – Life Cycle Assessment

Higher Education

- 2003-2007 PhD, School of Civil Engineering & Geosciences, Newcastle University, UK
- 2001-2003 MSc, Pavement Engineering, Chang'an University, China
- 1997-2001 BEng, Civil Engineering, Chang'an University, China

Anderson Wedderhoff Spengler (Federal University of Santa Catarina, Brazil)

Energy harvesting/ Solar Energy

Academic Posts:
Professor in Microcontrollers, Programmable Logic Devices and Aerospace Electronics at Federal University of Santa Catarina – Campus Joinville.

Education:
2010-2014 – PhD in Electrical Engineering, University of Campinas, School of Electrical and Computer Engineering. Topic: Signal conditioning and processing technique for fiber optic gyroscopes with optical closed-loop.
2008-2010 – Master in Electrical Engineering, University of Campinas, School of Electrical and Computer Engineering. Topic: Characterization system for fiber optics based sensors for high-voltage.
2004-2008 – Bachelor in Applied Physics, University of Campinas.

On Going Projects:
- Development of thermoelectric energy harvesting payload module for Cubesats (FloripaSat and SERPENS).
- Development of energy harvesting module for embedded systems using thermoelectric, magnetic and solar energy.

Giovani Gracioli (Federal University of Santa Catarina, Brazil)

Embedded systems/Automation

Education
Ph.D. Automation and Systems Engineering, Federal University of Santa Catarina, Brazil, Jul 2014 with a sandwich period at University of Waterloo, Canada (Fev 2012 - Aug 2012 - Supervisor: Prof. Dr Sebastian Fischmeister) and a sandwich period at Friedrich-Alexander Universität Erlangen-Nürnberg, Germany (Sep 2010 - Feb 2011 - Supervisor: Prof. Dr. Wolfgang Schröder- Preikschat)
M.Sc. Computer Science, Federal University of Santa Catarina, Brazil, Sep 2009
B.Sc. in Computer Science, Federal University of Santa Maria, Brazil, Mar 2007

Gustavo Henrique Lima Pinto (Federal Institute of Pará, Brazil)

Software engineering/big data analysis

Gustavo received his PhD from the Federal University of Pernambuco, in 2015. After a short Pos-Doc at the same institution, in January 2016, Gustavo will start working as an Adjunct Professor, at the Federal Institute of Pará. During his PhD, Gustavo spent a year at the State University of New York, working with Yu David Liu, a recent yet renowned CS professor. During his PhD and Pos-Doc, Gustavo worked in the intersection between programming languages and software engineering, dealing with the topic of "green software". During this short period of time, Gustavo published more than 10 paper about software energy consumption, some of which in highly visible and respected venues. Although Gustavo is still actively working in the subject, his interests became a bit broader, in particular, with a focus on social aspects of software engineering, big data analytics, and refactoring. Gustavo is also a member of ACM, ACM SIGPLAN, and SBC.

Isabel Tourinho Salamoni, Dra. Eng. (Universidade Federal de Pelotas, Brazil)

Construction Technology/Energy Efficiency/Environmental Comfort/Photovoltaic Solar Energy

Graduated in Architecture and Urbanism at the Universidade Católica de Pelotas in 2000 and Master, PhD and Post Doctor degree in Civil Engineering at the Universidade Federal de Santa Catarina, in Photovoltaic Solar Energy. During ten years I have worked as a researcher of Fotovoltaica UFSC Group. In 2007, I have finished the sandwich doctorate, within one year and four months at the Fraunhofer Institute for Solar Energy Systems in Freiburg - Germany. My Master degree was finished in 2004 and it analysed a Methodology to Calculate the Potential of Solar Energy Generation in Urban Areas in Brazil. Part of this research was published in Energy and Building Journal as the title: The strategic siting and the roofing area requirements of building integrated photovoltaic solar energy generators in urban areas in Brazil. The PhD degree was achieved in 2010 with a research title: A Brazilian solar roof program: public policy guidelines for the grid integrated PV systems. Part of this research was awarded the third place in the Monograph Contest of Renewable Energy and Energy Efficiency - Ecológicas 2008, with the title: The paradigm of the high cost of photovoltaics in Brazil and the grid parity.

During two years I was a temporary teacher at the Universidade Federal de Santa Catarina after that, during two years, I was associate professor and coordinator of the Architecture and Urbanism Course of the Universidade Católica de pelotas. Currently I am a Professor at the Graduate Program and at the Master in Architecture and Urbanism and vice director of the School of Architecture and Urbanism at the Universidade Federal de Pelotas. My research areas are: Construction Technology, Energy Efficiency, Environmental Comfort and Photovoltaic Solar Energy.

Ivan Muller (State University of Rio Grande do Sul, Brazil)

Embedded Systems/Wireless Power Transfer/Low Power Electronics

Ivan Muller is undergraduate, master, doctorate and post-doctorate in electrical engineering at Federal University of Rio Grande do Sul. He is currently associate professor in the graduate course of Computer Engineering and specialization in Embedded Systems from the State University of Rio Grande do Sul. Also acts as a collaborator of the postgraduate program in Electrical Engineering from Federal University of Rio Grande do Sul. Has experience in Instrumentation, Computer, Electronics and Telecommunications, acting on the following topics: Wireless Sensor Networks, Industrial Wireless Networks, Communication Protocols, Automation systems, Embedded Systems, Wireless Power Transfer and Low Power Electronics. He is a researcher of the INCT NAMITEC project since 2009 and collaborates in projects funded by CNPq, Petrobras and Finep.

. Ísis Portolan dos Santos (Federal University of Santa Maria, Brazil)

Building Integrated photovoltaic/Energy Efficiency Buildings

Ísis Portolan dos Santos is an Architect and Urbanist graduated in 2007 by Federal University of Santa Maria (UFSM). After graduation, Ísis took place at Federal University of Santa Catarina (UFSC) as a researcher of Fotovoltaica UFSC Group and attended master degree and PhD in Civil Engineering with this institution. Master degree, finalized in 2009, analysed the potential of residential building applied photovoltaic in a specific neighbourhood of Florianópolis. This research was published in Energy and Building Journal as 'The potential of building-integrated (BIPV) and building-applied photovoltaics (BAPV) in single-family, urban residences at low latitudes in Brazil'. The PhD degree was achieved in 2012 with a research about Brazilian architects perception about building integrated photovoltaic. This research applied a survey in an amount of architects to understand why Brazilian architects did not use photovoltaic technology in their designs. In 2014 this author published part of this research in the Renewable Energy Journal as 'Limitations in solar module azimuth and tilt angles in building integrated photovoltaics at low latitude tropical sites in Brazil' which had the intend to help architects to design with photovoltaic with more composition freedom if they know about variation of tilt and azimuth possibilities.

In 2009 Ísis was approved in a public contest and began her career as a Professor in UFSM, to teach in a Landscapes Technical Course. From that time to now Ísis teach some subjects to this Landscape Technical Course, to Architecture Graduation and to Civil Engineering Post Graduation. Some subjects are related to Building Integrated photovoltaic and Energy Efficiency Buildings.

Jair Urbanetz (Federal Technological University of Paraná, Brazil)

Power Electronics/Photovoltaics Systems

Obtained his PhD in Photovoltaic Systems at UFSC (2010); his Master degree in Power Electronics and Electrical Drive was obtained at UFSC (2002); he is Specialist in Management of Maintenance Engineering at UTFPR (1999). Graduated in Industrial Electrical Engineering at UTFPR (1995) and in Electronics Technician at UTFPR (1986). He is a professor in the Department of Electrical Engineering, at Federal Technological University of Paraná (UTFPR) in Curitiba, since 1996, where he teaches courses in Electrical Engineering and Engineering of Automation and Control. He is also Coordinator of the Post-Graduation in Renewable Energy, Professor in the Post-Graduation Program on Civil Engineering (PPGEC) and Post-Graduation Program Energy Systems (PPGSE). Have experience in Electrical Engineering with emphasis in Power Electronics and Photovoltaics Systems.

Jean Everson Martina (Universidade Federal de Santa Catarina, Brazil)

Information Security/Embedded Systems

Graduated in Computer Science from the Federal University of Santa Catarina (2001), master's degree in Computer Science from the Federal University of Santa Catarina (2005) and PhD in Computer Science from the University of Cambridge in the UK (2011). He is a lecturer in the Department of Informatics and Statistics of the Federal University of Santa Catarina since 2013, and visiting lecturer at the University of Hertfordshire in the UK since 2010. He has experience in computer science with an emphasis in Digital Certificate Management, Cryptographic Protocols, Embedded Systems, Formal Methods and Software Engineering focused on information security.

Lucas Carvalho Cordeiro (Federal University of Amazonas, Brazil)

Embedded Systems/System and Software Verifications

- Core competency in algorithms, software engineering, formal methods, program verification, and embedded systems.
- 58 reviewed publications, including 8 journal papers and 50 workshop/conference contributions, h-index 11, Best Paper Award at SBC SBESC'15 and ACM SAC'08, Distinguished Paper Award at ACM ICSE'11, and two bronze medals in the overall ranking of the international software verification competition at TACAS'12 and TACAS'13.
- Developer of XMPM, STB225, ESBMC, BMCLua, and DSVerifier tools.
- Active international research collaborations with University of Southampton, UK and University of Stellenbosh, South Africa.
- Proven track record of securing research funding from Samsung, Nokia Institute of Technology, CNPq, FAPEAM, British Council, and Royal Society (career total in excess of BRL8,250,265 or USD2,093,444).
- Research team leader of the systems and software verification lab (two PhD, six MSc, and eight BSc students), acted as course leader of Electrical/Electronics Engineering from 2011 to 2015.
- Leader of the International Technological Cooperation Program at the Electronic and Research Information Center.
- Permanent member of the Graduate Program in Electrical Engineering and collaborator of the Graduate Program in Informatics at the Federal University of Amazonas.

Lucas Wanner (University of Campinas, Brazil)

Embedded applications/energy optimizations

Education

• Ph.D., Computer Science, 2014
University of California (UCLA), Los Angeles, USA
• M.S., Computer Science, 2006
• B.S., Computer Science, 2004
Federal University of Santa Catarina (UFSC), Brazil

Wilson Negrão Macêdo (Universidade Federal do Pará, Brazil)

Solar Photovoltaic Energy/Low Voltage Electrical Grid/Renewable Energies

Adjunct IV professor at the Institute of Technology of the Federal University of Pará, where he teaches in Under Graduation and Graduation in Electric Engineering. B.E. degree (1999) and M.E. degree (2002) in Electrical Engineering from the Federal University of Para and Doctorate degree. in Energy from the University of Sao Paulo (2006), where he worked from 2002 to 2006 at the Photovoltaic Systems Laboratory of the Electrotechnical and Energy Institute. Currently develops research in the solar photovoltaic energy and hybrid systems, at the Group of Studies and Development of Energy Alternatives of the Federal University of Pará (GEDAE/UFPA), where coordinates the Photovoltaic Systems Laboratory, is also a researcher at the National

Institute of Science and Technology of Renewable Energy and Energy Efficiency of Amazon (INCT-EREEA) and at the Group of Research in Innovation, Development and Adaptation of Sustainable Technologies – GPIDATS – IDSM-OS. Fellow of the Brazilian Association of Solar Energy (ABENS). Has experience in Electrical Engineering, with emphasis on Electric Power Systems, acting on the following topics: Distributed Generation, Solar Photovoltaic Energy, Connection to Low Voltage Electrical Grid, Renewable Energies, Isolated Places Attending.

Mentor/Mentees

The table below gives the list of Mentor and Mentee teams for throughout this workshop.

Mentor	Mentor Group
Antônio Augusto Fröhlich	Anh L. H. Tran
	Bamidele Abedisi
	Ísis Portolan dos Santos
	Anderson W. Spengler
	Jelte Harnmeijer
André Ramos	Isabel Tourinho Salamoni
	Jair Urbanetz Junior
	Samuel James Williamson
	Pedro Carvalhaes Dias
	Rodrigo Gaiba de Oliveira
John Halloran	Nervo Verdezoto
	Lara Godoy Piccolo
	Martin Pullinger
	Alec Waterworth
	Hong Bui
Ricardo Ruther	Eoghan McKenna
	Domenico Balsamo
	Wilson Negrão Macêdo
	Anil Kashyap
	Augustine AIfelebuegu
	Jakson Paulo Bonaldo
James Brusey	Yi Chu
	Giovani Gracioli
	Lucas Wanner
	Lucas Carvalho Cordeiro
	Jean Everson Martina