

# Stephen Makonin, PhD, PEng, smIEEE

Alternate First Names: Степан / 駿豪 / 骏豪 / 준호



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## Education

- 2010–2014 **Doctor of Philosophy (PhD)**, Simon Fraser University, Computing Science (Canada)  
Thesis: Real-Time Embedded Low-Frequency Load Disaggregation  
Advisor: Fred Popowich
- 2007–2009 **Bachelor of Technology (BTech)**, British Columbia Institute of Technology (Canada)  
Major: Computer Systems with a Data Communications Specialization
- 1993–1996 **Diploma in Computer Technology**, Selkirk College (Canada)
- 2018 **Instructor Certificate**, Software Carpentry Foundation (Canada)
- 2009 **Certificate, Electronics Technician**, George Brown College (Canada)

## Professional Affiliation

- 2018 – now **Professional Engineer (PEng)**, Engineers and Geoscientists BC (EGBC)
- 2013 – now **Senior Member (smIEEE)**, Institute of Electrical and Electronics Engineers (IEEE)  
Member and Member since 2008. (M'08—SM'13)

## Academic & Research Positions

- 2022 – now **Senior Research Scientist**, Simon Fraser University (Canada)  
NRCan Project: Tap&Go Electric Vehicle Charging Infrastructure Demonstration
  - 2017 – now **Adjunct Professor**, Simon Fraser University (Canada)  
Engineering Science, Computational Sustainability Lab: <http://compsust.fas.sfu.ca>
  - 2018 **Visiting Professor**, Indraprastha Institute of Information Technology, Delhi (India)  
Signal Analysis For Large Scale Applications (SALSA) Lab, PI: Angshul Majumdar
- 
- 2014 – now **Various Instructor Roles**, Simon Fraser University (Canada)  
[See Teaching Experience Section for details]
  - 2014 – now **Co-Founder & Senior Research Scientist**, SweetLightning (Calgary, Canada)
  - 2014 – 2020 **Postdoctoral Fellow & Research Associate**, Simon Fraser University (Canada)
    - 2019 – 2021: **Research Associate**, SFU's Big Data Hub
    - 2015 – 2018: **Postdoctoral Fellow**, Engineering Science, Advisor: Ivan V. Bajić
    - 2014 – 2015: **Postdoctoral Fellow**, Computing Science, Advisor: Wolfgang Stuerzlinger
  - 2016 – 2017 **Postdoctoral Fellow**, University of British Columbia (Canada)  
Electrical and Computer Engineering, Advisor: Z. Jane Wang
  - 2008 – 2015 **Research Associate**, British Columbia Institute of Technology (Canada)

## HQP Supervision

**Nomenclature:** ENSC = Engineering Science, CMPT = Computing Science, COGS = Cognitive Science, SEE = Sustainable Energy Engineering, MSE = Mechatronic Systems Engineering

### POSTDOCTORAL FELLOWS

2017 – 2021 **Senior Supervisor of Md. Zulfiqar Ali Bhotto**, ENSC Postdoctoral Fellow  
Research Areas: NILM, smart grid optimization

### PH.D. STUDENTS

*future* **Jiayi Fan** (to start Sep 2022) ENSC, Research Areas: Kalman filtering, AI, deep learning

### MASTERS STUDENTS

*future* **JangHyeon Lee** (to start Sep 2022) ENSC, Research Areas: Deep learning, explainable AI

2021 – now **Maria Tu**, ENSC MASc (started Jan 2021), Senior Supervisor of  
Thesis: tbd, Research Areas: Data Engineering, Metadata

2018 – 2021 **Alejandro Rodriguez-Silva**, ENSC MASc (defended Dec 9, 2021), Senior Supervisor of  
Thesis: Filtering in Non-Intrusive Load Monitoring

2019 – 2020 **Richard Jones**, ENSC MASc (defended Dec 18, 2020), Senior Supervisor of  
Awards/Scholarships: Graduate Dean's Entrance Scholarship (GDES), NSERC CGS-M  
Thesis: Non-Parametric Modeling in Non-Intrusive Load Monitoring

2018 – 2020 **Alon Harell**, ENSC MASc (defended Aug 19, 2020), Co-Supervisor of  
Awards/Scholarships: NSERC CGS-M  
Thesis: Deep Learning Applications in Non-Intrusive Load Monitoring

2014 – 2015 **Bradley Ellert**, CMPT MSc (defended Aug 17, 2015), Co-Supervisor of  
Thesis: Leveraging Submetered Electricity Loads to Disaggregate Household Water-Use

### RESEARCH ASSISTANTS

2021-2022 **Emma Hughson**, , SFU's Big Data Hub (on going, 6 months), CMPT MSc Student

2020 – 2021 **Daisy Chen**, CompSust Lab (6 months), SEE BASc Student  
**Xing Chen Cao**, CompSust Lab (6 months), ENSC BASc Student  
**Zachary Fletcher**, CompSust Lab (6 months), COGS BSc Student  
Project: NILM Toolkit - develop a testing and training toolset

2020 **Ramy ElMallah**, SFU's Big Data Hub (6 months), MSE BASc Student  
Project: Marine acoustic classification (deep learning, federated learning, Raspberry Pi)

### VISITING SCHOLARS

2019 **David Murray** — PhD, University of Strathclyde, UK (2 months)

2019 **Bundit Buddhahai** — PhD, KMUTT, Thailand (6 months)

2019 **Christoph Klemenjak** — PhD, University of Klagenfurt, Austria (6 months)

2018 **Shikha Singh** — PhD, IIIT-Delhi, India (1/2 month)

2017 – 2018 **Megha Gaur** — PhD, IIIT-Delhi, India (6 months)

## External Examiner (Viva)

2019 **Georgia Elafoudi (PhD Electronic and Electrical Eng.)**, University of Strathclyde, UK  
Thesis: Meaningful Information Extraction from IoT Measurements using Signal Information Processing

## Teaching Experience

- Feb, Apr, Jun, **AI Essentials: Data Fellowship Workshop**  
 Aug, Oct 2021 Simon Fraser University, Big Data Hub  
 Week-long workshops for non-computing students, faculty, and industry professionals.  
 Course is delivered over Zoom using Google Colab.  
*Collaboration offerings delivered with:*  
 - Jun 2021: Digital Democracies Institute (DDI), SFU
- Self-Directed Study Courses for Graduate and Undergraduate Students**
- Spring 2021 CMPT 415: Survey of ML for Big Data Processing & Applications of AI (Smart Homes)  
 Fall 2021 ENSC 891: Data Engineering for Intelligent Systems  
 Spring 2021 MSE 489: Data Engineering for Intelligent Systems  
 Fall 2019 ENSC 891: Survey of Machine-Learning Techniques for Disaggregating Complex Signals  
 Fall 2018 ENSC 891: Advanced Adaptive Filtering for Power Signal Disaggregation
- Fall 2014, **Introduction to the Internet and the World Wide Web (CMPT 165)**  
 Spring 2015 Simon Fraser University, School of Computing Science  
 Students each semester: in-class section 200 (90% ESL Mandarin), dist. ed. section 225  
 TAs/TMs: in-class section 3, dist. ed. section 3  
 Semester 14-3 Evaluation: A: 71% /B: 26% /C: 3% /D: 0% /F: 0%  
 Semester 15-1 Evaluation: A: 83% /B: 15% /C: 0% /D: 2% /F: 0%

## Grants & Funding (PI = Principal Investigator)

- 2020 **PI** — Mitacs Accelerate (\$70,000, 3 Installments, 16 months)  
 Title: Intelligent Systems Data Ingestion and Analytics  
 Computing MSc Students: Peshotan Irani, Kyoun Huh
- 2020 **PI** — NSERC COVID19 Top-Up Supplement Award (\$8,480, lump sum)
- 2020 **Canadian PI** — EUREKA Grant (€1,120,000, 2 years, Canada/South Korea)  
 Title: Development of integrated NILM algorithms considering multiple resolutions and designing service scenarios
- 2020 **Co-PI** — SSHRC Knowledge Synthesis Grant (\$50,000, 1 year)  
 Title: Tackling the Carbon Footprint of Streaming Media
- 2019 **PI** — NSERC Engage Grant (\$25,000, 6 months)  
 Title: Inferring power grid transformer to meter association using inconsistent geospatial data
- 2019 **Investigator** — European Commission Horizon2020 Grant (2 years)  
 Title: SENSors and Intelligence in BuLt Environment (SENSIBLE) project  
*[indirect moneys to allow for international grad student visits]*
- 2019 **PI** — NSERC Discovery Launch Supplement Award (\$12,500, lump sum)
- 2018 **PI** — NSERC Discovery Grant (\$140,000, 5 years)  
 Title: Non-Intrusive Load Monitoring (NILM)
- 2016 **Postdoc** — IC-IMPACTS NCE Project Grant (\$133,000, 2 years, 11.2% success rate)  
 Title: Energy and Water Disaggregation for Non-Intrusive Load Monitoring in Buildings  
*[I was a main author and organizer of grant but could not be co-PI due to funding rules]*
- 2012, 14 **PhD Candidate** — SFU GSS Professional Development Grant (2 at \$500 each)
- 2013 **PI** — BCIT School of Energy Research Seed Funding (\$10,000, 4 months)  
 Title: Branch Circuit Ammeter and Data Logger for Smart Grid/Home Application

## **Publications** (see citation report at end of CV)

### **BOOKS**

- F. Pacheco-Torgal, E. Rasmussen, C.-G. Granqvist, V. Ivanov, H. A. Kaklauskas, and **S. Makonin**, editors (2016). *Start-Up Creation: The Smart Eco-Efficient Built Environment, 1st Edition*. (2020). *Start-Up Creation: The Smart Eco-Efficient Built Environment, 2nd Edition*. Woodhead Publishing/Elsevier, ISBN: 9780128199466 / eBook 9780128199473.
- D. Bennett, **S. Makonin**, V. W. Mayfield, T. Neustaedter, and M. R. Wrenn (1996). *Visual C++ 5.0 Developer's Guide*. Sams Publishing, ISBN: 978-0-672-31031-7.

### **JOURNAL ARTICLES (PEER REVIEWED)**

- A. Rodriguez-Silva, and **S. Makonin** (2022). Using the Power Assignment Metric for Unsupervised Disaggregation Auto-Labeling. *IEEE Power Engineering Letters*. [in revision]
- K. Noh, Y. Lee, and **S. Makonin** (2022). Single-Class Object Detection in Dense Images Using Adaptive Non-Maximum Suppression. *IEEE Trans. on Pattern Analysis and Machine Intelligence*. [in submission]
- R. Jones, and **S. Makonin** (2022). A Non-Parametric Modelling Method for Unsupervised Non-Intrusive Load Monitoring. *IEEE Access*. [early access]
- C. Kang, J. Browell, M. Farrokhabadi, C. Huang, **S. Makonin**, E. Nasr, W. Su, Y. Wang, and J. R. Xie (2022). Editorial Special Section on COVID-19 Impact on Electrical Grid Operation: Analysis and Mitigation. *IEEE Open Access Journal of Power and Energy*, 9:183-184.
- M. Farrokhabadi, J. Browell, Y. Wang, **S. Makonin**, W. Su, and H. Zareipour (2022). Day-Ahead Electricity Demand Forecasting Competition: Post-COVID Paradigm. *IEEE Open Access Journal of Power and Energy*, 9:185-191.
- B. Buddhahai, and **S. Makonin** (2021). A Nonintrusive Load Monitoring Based on Multi-Target Regression Approach. *IEEE Access*, 9:163033-163042.
- A. Harell, R. Jones, **S. Makonin**, and I. V. Bajić (2021). TraceGAN: Synthesizing Appliance Power Signatures Using Generative Adversarial Networks. *IEEE Trans. on Smart Grid*, 12(5): 4553- 4563.
- Md. Z. A. Bhotto, R. Jones, **S. Makonin**, and I. V. Bajić (2021). Short-Term Microgrid Demand Prediction Using an Ensemble of Linearly-Constrained Estimators. *IEEE Trans. on Power Systems*, 36(4): 3163-3175.
- C. Klemenjak, **S. Makonin**, and W. Elmenreich (2021). Investigating the Performance Gap between Testing on Real and Denoised Aggregates in Non-Intrusive Load Monitoring. *Energy Informatics*, 4(3):1-15.
- C. Dinesh, **S. Makonin**, and I. V. Bajić (2020). Residential Power Forecasting Based on Affinity Aggregation Spectral Clustering. *IEEE Access*, 8:99431-99444.
- C. Dinesh, **S. Makonin**, and I. V. Bajić (2019). Residential Power Forecasting Using Load Identification and Graph Spectral Clustering. *IEEE Trans. on Circuits and Systems II: Express Briefs*, 66(11):1900-1904.
- M. Gaur, **S. Makonin**, I. V. Bajić, and A. Majumdar (2019). Performance evaluation of techniques for identifying abnormal energy consumption in buildings. *IEEE Access*, 7:62721-62733.
- S. Makonin** (2019). HUE: The Hourly Usage of Energy Dataset for Buildings in British Columbia. *Data in Brief*, 23(103744):1-4.
- S. Makonin**, Z. J., Wang, and C. Tumpach (2018). RAE: The Rainforest Automation Energy Dataset for Smart Grid Meter Data Analysis. *Data*, 3(1):1-9.
- Md. Z. A. Bhotto, **S. Makonin**, and I. V. Bajić (2016). Load Disaggregation Based on Aided Linear Integer Programming. *IEEE Trans. on Circuits and Systems II: Express Briefs*, 64(7):792-796.
- S. Makonin**, B. Ellert, I. V. Bajić, and F. Popowich (2016). Electricity, water, and natural gas consumption of a residential house in Canada from 2012 to 2014. *Scientific Data*, 3(160037):1-12.

- S. Makonin**, F. Popowich, I. V. Bajić, B. Gill, and L. Bartram (2016). Exploiting HMM Sparsity to Perform Online Real-Time Nonintrusive Load Monitoring. *IEEE Trans. on Smart Grid*, 7(6):2575–2585.
- S. Makonin** and F. Popowich (2015). Nonintrusive Load Monitoring (NILM) Performance Evaluation. *Energy Efficiency*, 8(4):809–814.
- S. Makonin**, L. Bartram, and F. Popowich (2013). A Smarter Smart Home: Case Studies of Ambient Intelligence. *IEEE Pervasive Computing*, 12(1):58–66.
- S. Makonin** and F. Popowich (2012). Home Occupancy Agent: Occupancy and Sleep Detection. *GSTF Journal on Computing*, 2(1):182–186.
- CONFERENCE PROCEEDINGS (PEER REVIEWED)**
- K. Noh, Y. Lee, and **S. Makonin** (2022). Object Detection in Dense Images Using Adaptive Non-Maximum Suppression. *Under Consideration at the IEEE International Conference on Image Processing (ICIP)*.
- S. Makonin**, L. U. Marks, R. Przedpelski, A. Rodriguez-Silva, and R. ElMallah (2022). Calculating the Carbon Footprint of Streaming Media: Beyond the Myth of Efficiency. In *Proceedings of the Eighth Workshop on Computing within Limits 2022, LIMITS*.
- R. Jones, C. Klemenjak, **S. Makonin**, and I. V. Bajić (2020). Stop! Exploring Bayesian Surprise to Better Train NILM. In *Proceedings of the 5th International Workshop on Non-Intrusive Load Monitoring*.
- S. Singh, A. Majumdar, and **S. Makonin** (2020). Compressive Non-Intrusive Load Monitoring. In *Proceedings of the 7th ACM International Conference on Systems for Energy-Efficient Built Environments (BuildSys)*.
- R. Jones, A. Rodriguez-Silva, and **S. Makonin** (2020). Increasing the Accuracy and Speed of Universal Non-Intrusive Load Monitoring (UNILM) Using a Novel Real-Time Steady-State Block Filter. In *Proceedings of the 11th Conference on Innovative Smart Grid Technologies (ISGT)*.
- C. Klemenjak, **S. Makonin**, and W. Elmenreich (2020). Towards Comparability in Non-Intrusive Load Monitoring: On Data and Performance Evaluation. In *Proceedings of the 11th Conference on Innovative Smart Grid Technologies (ISGT)*.
- A. Rodriguez-Silva, and **S. Makonin** (2019). Universal Non-Intrusive Load Monitoring (UNILM) Using Filter Pipelines, Probabilistic Knapsack, and Labelled Partition Maps. In *Proceedings of the 11th IEEE PES Asia-Pacific Power and Energy Engineering Conference 2019 (APPEEC)*.
- C. Klemenjak, A. Reinhardt, L. Pereira, **S. Makonin**, M. Bergés, and W. Elmenreich (2019). Electricity Consumption Data Sets: Pitfalls and Opportunities. In *Proceedings of the 6th ACM International Conference on Systems for Energy-Efficient Built Environments, Cities, and Transportation (BuildSys)*.
- A. Harell, **S. Makonin**, and I. V. Bajić (2019). WaveNILM: A Causal Neural Network for Power Disaggregation from the Complex Power Signal. In *Proceedings of the 44th International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*.
- L. Guzman, **S. Makonin**, and R. A. Clapp (2019). CarbonKit: Designing A Personal Carbon Tracking Platform. In *Proceedings of SocialSense '19: Fourth International Workshop on Social Sensing*.
- C. Dinesh, **S. Makonin**, and I. V. Bajić (2017). Incorporating Time-Of-Day Usage Patterns Into Non-Intrusive Load Monitoring. In *Proceedings of the 5th IEEE Global Conference on Signal and Information Processing (GlobalSIP)*.
- S. Makonin** (2016). Investigating the Switch Continuity Principle Assumed in Non-Intrusive Load Monitoring (NILM). In *Proceedings of the 29th Annual IEEE Canadian Conference on Electrical and Computer Engineering (CCECE)*.
- S. Makonin**, D. McVeigh, W. Stuerzlinger, K. Tran, and F. Popowich (2016). Mixed-Initiative for Big Data: The Intersection of Human + Visual Analytics + Prediction. In *Proceedings of the 49th Hawaii International Conference on System Sciences (HICSS)*, pp. 1427–1436.



- B. Ellert, **S. Makonin**, and F. Popowich (2015). Appliance Water Disaggregation via Non-Intrusive Load Monitoring (NILM). In *Proceedings of the EAI International Conference on Big Data and Analytics for Smart Cities (BigDASC)*.
- J. Wallace, K. Richardson, B. Gill, and **S. Makonin** (2015). Cognitive Radio Technology: System Evolution. In *Proceedings of the 4th International Conference On Wireless Networks and Embedded Systems (WECON)*.
- S. Makonin**, I. V. Bajić, and F. Popowich (2014). Efficient Sparse Matrix Processing for Nonintrusive Load Monitoring (NILM). In *Proceedings of the 2nd International Workshop on Non- Intrusive Load Monitoring*.
- S. Makonin**, L. Guzman Flores, R. Gill, R. A. Clapp, L. Bartram, and B. Gill (2014). A Consumer Bill of Rights for Energy Conservation. In *Proceedings of the 2014 IEEE Canada International Humanitarian Technology Conference (IHTC)*.
- R. Filsoof, A. Bodine, B. Gill, **S. Makonin**, and R. Nicholson (2014). Transmitting Patient Vitals Over a Reliable ZigBee Mesh Network. In *Proceedings of the 2014 IEEE Canada International Humanitarian Technology Conference (IHTC)*.
- S. Makonin**, W. Sung, R. Dela Cruz, B. Yarrow, B. Gill, F. Popowich, and I. V. Bajić (2013). Inspiring Energy Conservation Through Open Source Metering Hardware and Embedded Real-Time Load Disaggregation. In *Proceedings of the 5th IEEE PES Asia-Pacific Power and Energy Engineering Conference (APPEEC)*.
- S. Makonin**, F. Popowich, L. Bartram, B. Gill, and I. V. Bajić (2013). AMPds: A Public Dataset for Load Disaggregation and Eco-Feedback Research. In *Proceedings of the 2013 IEEE Electrical Power and Energy Conference (EPEC)*.
- S. Makonin**, F. Popowich, T. Moon, and B. Gill (2013). Inspiring Energy Conservation Through Open Source Power Monitoring and In-Home Display. In *Proceedings of the 2013 IEEE Power and Energy Society General Meeting*.
- S. Makonin**, F. Popowich, and B. Gill (2013). The Cognitive Power Meter: Looking Beyond the Smart Meter. In *Proceedings of the 2013 26th Annual IEEE Canadian Conference on Electrical and Computer Engineering (CCECE)*.
- S. Makonin**, M. Kashani, and L. Bartram (2012). The Affect of Lifestyle Factors on Eco-Visualization Design. In *Proceedings of Computer Graphics International (CGI)*.
- S. Makonin**, P. Pasquier, and L. Bartram (2011). Elements of Consumption: An abstract visualization of household consumption. In *Smart Graphics*, LNCS, 6815:194–198. Springer Berlin Heidelberg.
- S. Makonin** and F. Popowich (2011). An intelligent agent for determining home occupancy using power monitors and light sensors. In *Toward Useful Services for Elderly and People with Disabilities*, LNCS, 6719:236–240. Springer Berlin Heidelberg.

#### POSTER & DEMO SESSIONS (PEER REVIEWED)

- A. Harell, **S. Makonin**, and I. V. Bajić (2018). A Recurrent Neural Network for Multisensory Non-Intrusive Load Monitoring on a Raspberry Pi. In *Proceedings of the IEEE 20th International Workshop on Multimedia Signal Processing (MMSP)*.

#### TECHNICAL REPORTS

- S. Makonin** (2012). *Approaches to Non-Intrusive Load Monitoring (NILM) in the Home*. PhD Depth Report, Simon Fraser University, School of Computing Science.

## Service To Profession

### ADVISORY BOARDS/COMMITTEES

2021 – now **Faculty Advisory Member**, *SFU Sustainability Advisory Council (S-AC)*

2020 – now **Advisory Board Member**, *IEEE DataPort*

### JOURNAL EDITORSHIPS

2021 – now **Guest Editorial Board Member**, *IEEE Open Access Journal of Power and Energy*  
Special Section: COVID-19 Impact on Electrical Grid Operation: Analysis and Mitigation

2020 – now **Editor in Chief**, *IEEE DataPort Metadata Review Board*

2019 – now **Editorial Board Member**, *Scientific Data*, Nature

### STANDARDS ASSOCIATIONS

2021 – now **Vice-Chair**, *Big Data Governance and Metadata Management (2957)*  
**Chair** of the *Implementation Testbed Subgroup of IEEE P2957 BDGMMWG*  
IEEE Standards Association (IEEE SA) & NIST (USA)

### GRANT REVIEWER

2014, 17, 19-21 **External Grant Reviewer**, Mitacs Accelerate Grant Proposal, Canada

2018 **External Grant Reviewer**, EPSRC Grant Proposal, UK

### GENERAL CHAIR & ORGANIZER

- 2020 5th International Workshop on Non-Intrusive Load Monitoring (NILM)  
Yokohama, Japan [virtual/online]. November 18 – 20
- 2019 Advanced Signal Processing for Non-intrusive Load Monitoring Special Session  
44th International Conference on Acoustics, Speech, and Signal Processing (ICASSP)  
Brighton, UK. May 12
- 2018 4th International Workshop on Non-Intrusive Load Monitoring (NILM)  
Austin, TX, USA. March 7 – 8
- 2017 The Plenty of Fish (POF) 24hr Hackathon  
Burnaby, Canada. October 13 – 14, 24-hours
- 2016 3rd International Workshop on Non-Intrusive Load Monitoring (NILM)  
Vancouver, Canada. May 14 – 15
- 2015 IEEE Vancouver Windows 10 Hackathon  
Burnaby, Canada. May 16 – 17, 28-hours
- 2014 IEEE Vancouver Kinect and Structure Sensor Hackathon  
Burnaby, Canada. November 8 – 9, 28-hours

### WEBSITE & SOCIAL MEDIA CHAIR

- 2016 14th IEEE International NEW Circuits And Systems (NEWCAS) Conference  
Vancouver, Canada. June 26 – 29
- 2016 29th Annual IEEE Canadian Conf. on Electrical and Computer Engineering (CCECE)  
Vancouver, Canada. May 15 – 18
- 2014 IEEE 15th Int. Conf. on High Performance Switching and Routing (HPSR)  
Vancouver, Canada. July 1 – 4

## Technical Program Committee (TPC) Member

- 2021 IEEE Day-Ahead Electricity Demand Forecasting: Post-COVID Paradigm Competition
- 2020 eSim 2020, International Building Performance Simulation Association (IBPSA-Canada)
- 2019 11th IEEE PES Asia-Pacific Power and Energy Engineering Conference (APPEEC)
- 2017 5th IFIP Conference on Sustainable Internet and ICT for Sustainability (SustainIT)
- 2015 – 2017 IEEE Workshop on Pervasive Energy Services (PerEnergy)
- 2016 Int. Workshop on Computational Energy Management in Smart Grids (CEMiSG)
- 2015 Int. Conf. on Big Data and Analytics for Smart Cities (BigDASC)
- 2011 – 2015 Int. Conf. on Ubiquitous Computing and Ambient Intelligence (UCAmI)
- 2012 IEEE Int. Conf. on Power and Energy (PECON)

## Keynotes, Invited Talks & News/Media Interviews

- 2022 **Learning & Thoughts After 10 Years of NILM Research**  
Tianjin University 天津大学 (China), Virtual Guest Lecture, 60 min, January 25.
- 2021 **Let's get together with a small carbon footprint**  
Pacific AIDS Network (Vancouver, Canada), Webinar, co-presented, May 27.
- 2020 **Laura Marks and Stephen Makonin: Streaming video is overheating the planet**  
The Vancouver Sun (Vancouver, Canada), Op-Ed, August 15.
- 2019 **News Talk Show Interview/Discussion on CarbonKit and Personal Carbon Tracking**  
The Danielle Smith Show (Calgary, Canada), Talk Radio Guest, 22 min, October 2.
- 2018 **Data, Datasets, and Data Engineering**  
The 5th EU NILM Workshop (Duisburg, Germany), Invited, October 1.
- 2018 **NILM Real-World Testing: An Emulator for NILM and Smart Home Research**  
4th International Workshop on NILM (Austin, USA), Invited, March 8.
- 2017 **The Expectations of Non-Intrusive Load Monitoring (NILM)**  
The International Conference on Application of Demand-Side Management (DSM) and Data Driven Technology in Energy Saving (Taipei, Taiwan), Keynote, November 22.
- 2017 **NILM Real-World Testing: The Case for an Emulator**  
The 4th EU NILM Workshop (London, UK), Invited, November 7.
- 2015 **From Socioeconomic Concerns to Standardizing Accuracy to Water NILM**  
The 2nd EU NILM Workshop (London, UK), Invited, July 8.



## Scholarships & Awards

- 2017 IEEE Signal Processing Society Appreciation Certificate — Leadership & Support
- 2015 IEEE Vancouver Section Leadership and Contribution Award — Initiative
- 2014 SFU Faculty of Applied Science (FAS) Graduate Fellowship (PhD)
- 2012, 14 Ebco/Eppich Graduate Scholarships in Intelligent Systems
- 2013 SFU Travel & Minor Research Award (2 awards won that year)
- 2013 SFU President's PhD Scholarship
- 2012, 13 SFU Graduate Fellowship (PhD)
- 2010 BCIT Vancouver 2010 Olympic Winter Games Legacy Fund Scholarship

## Volunteer Work

- 2020 – now **Strata Council Executive**, The Peak (EPS5447) at Simon Fraser University
- 2017 – now **Yearly Scholarship for Aboriginal Undergraduates** (Donor of), Simon Fraser University
- 2016 – now **Executive Member**, IEEE Vancouver Section
  - Vice-Chair, Signal Processing Chapter: 2016 – now
  - Chair, IEEE Vancouver Joint Computing Chapter: 2014 – 2016
  - Membership Development Chair, IEEE Vancouver Section: 2012 – 2014
- 2018 – 2020 **Director of Communication**, Burnaby Mountain Mantas Swim Club
- 2012 – 2019 **Executive Member**, Westside Montessori Academy PAC
  - Co-Chair: 2014/15 school year
  - Treasurer: 2014/15, 2015/16, 2016/17, and 2017/18 school years
  - Executive-at-Large: 2012/13 and 2018/19 school years

## Industry Résumé

- 1996 – now **Senior Software Developer Consultant**
  - Oponix Systems Inc. formerly Makonin Consulting Corp. (1996-2010, Canada)
  - Clients incl. Telus Mobility, Vancouver Coastal Health, Sierra Wireless, Safeway Canada, and Quartech Systems. Recent clients incl. Green Running (UK), and Itron (USA)
- 2017 – 2018 **Senior Software Engineer** — Knowledge Network (Canada)
  - iOS/Swift, tvOS/TVML, Drupal RESTful API, and video streaming development
  - Reporting staff: 1 Software Developer
- 2006 – 2008 **Co-Founder & CTO** — Vvvroom.com (Canada)
  - Newsfeed socialmedia service/app (RSS/ATOM aggregator)
- 2006 **Director of Software Development, Vancouver** — AbsolutePoker (Vancouver, Canada)
  - Reporting staff: 3 Software Developers, 1 QA Manager, 3 QA Testers
  - Department budget: \$600,000/year

## Citation Counts Report

This report was generated by <https://github.com/smakonin/ScholarHacks> and reports [Google Scholar results](#).

Report generated on: 2022-07-18 07:33:29.921463

Citations = 1,987  
h-index = 20  
i10-index = 34

Paper Title	Citations	Journal IF
AMPds: A public dataset for load disaggregation and eco-feedback re...	349	
Exploiting HMM Sparsity to Perform Online Real-Time Nonintrusive Lo...	309	8.960
Electricity, water, and natural gas consumption of a residential ho...	205	6.444
Nonintrusive load monitoring (NILM) performance evaluation	175	2.574
Load Disaggregation Based on Aided Linear Integer Programming	82	3.292
WaveNILM: A Causal Neural Network for Power Disaggregation from the...	78	
A Smarter Smart Home: Case Studies of Ambient Intelligence	77	
RAE: The Rainforest Automation Energy Dataset for Smart Grid Meter ...	61	3.500
Towards Comparability in Non-Intrusive Load Monitoring: On Data and...	42	
Residential power forecasting using load identification and graph s...	40	3.292
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Efficient Sparse Matrix Processing for Nonintrusive Load Monitoring...	35	
Visual C++ 5.0 Developer's Guide	34	
Mixed-Initiative for Big Data: The Intersection of Human + Visual A...	30	
Performance evaluation of techniques for identifying abnormal energ...	29	3.367
Investigating the Switch Continuity Principle Assumed in Non-Intrus...	29	
Electricity consumption data sets: Pitfalls and opportunities	27	
Appliance Water Disaggregation via Non-Intrusive Load Monitoring (N...	22	
HUE: The Hourly Usage of Energy Dataset for Buildings in British Co...	20	1.700
The Affect of Lifestyle Factors on Eco-Visualization Design	20	
Approaches to Non-Intrusive Load Monitoring (NILM) in the Home	18	
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Inspiring energy conservation through open source metering hardware...	16	
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Inspiring energy conservation through open source power monitoring ...	15	
A consumer bill of rights for energy conservation	14	
Residential Power Forecasting Based on Affinity Aggregation Spectra...	13	3.367
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Peer-Reviewed Conferences:	37 papers	968
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**Note:** Papers without a citation count are not listed (with the exception of journal papers).