Stephen Makonin, PhD, PEng, smIEEE

Alternate First Names: Степан / 駿豪 / 骏豪 / 준호

Mobile: +1 604-725-7838

Email: smakonin@sfu.ca
Website: http://www.sfu.ca/~smakonin/

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
Saudi Geologic Survey Project: Artificial Intelligence Geological Data Analysis Centre

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. Zulfiquar 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

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 (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 (½ 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, Aug, Oct 2021 **AI Essentials: Data Fellowship Workshop**
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, Spring 2015 **Introduction to the Internet and the World Wide Web (CMPT 165)**
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 ($196,000, 7 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)

B. Buddhahai, S. K. Korkua, P. Rakkwamsuk, and **S. Makonin** (2023). A Design and Comparative Analysis of a Home Energy Disaggregation System Based on a Multi-Target Learning Framework. *Buildings, 13(4):911,1-16*.

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. *EEE 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 (2017). 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. *IEEE TechRxiv*.

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.

PATENTS

R. Jones, C. Tumpach, Md. Z. A. Bhotto, I. V. Bajić, S. Makonin (2022). Dynamic Energy Management and Cost Optimization in Local Grids. *US Patent App. 17/494,676*.

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 EEE 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)
Auston, 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 Costal 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: 2023-10-29 10:03:03.717700

Citations = 2,546
h-index = 21
i10-index = 35

Paper Title	Citations	Journal IF
AMPds: A public dataset for load disaggregation and eco-feedback re...	397	
Exploiting HMM Sparsity to Perform Online Real-Time Nonintrusive Lo...	385	8.960
Electricity, water, and natural gas consumption of a residential ho...	278	6.444
Nonintrusive load monitoring (NILM) performance evaluation	223	2.574
WaveNILM: A Causal Neural Network for Power Disaggregation from the...	121	
Load Disaggregation Based on Aided Linear Integer Programming	110	3.292
RAE: The Rainforest Automation Energy Dataset for Smart Grid Meter ...	84	3.500
A Smarter Smart Home: Case Studies of Ambient Intelligence	84	
Residential power forecasting using load identification and graph s...	60	3.292
Towards Comparability in Non-Intrusive Load Monitoring: On Data and...	58	
The cognitive power meter: Looking beyond the smart meter	52	
Performance evaluation of techniques for identifying abnormal energ...	47	3.367
Efficient Sparse Matrix Processing for Nonintrusive Load Monitoring...	46	
HUE: The Hourly Usage of Energy Dataset for Buildings in British Co...	44	1.700
Real-time embedded low-frequency load disaggregation	39	
TraceGAN: synthesizing appliance power signatures using generative ...	37	8.960
Electricity consumption data sets: Pitfalls and opportunities	36	
Mixed-Initiative for Big Data: The Intersection of Human + Visual A...	34	
Visual C++ 5.0 Developer's Guide	34	
Investigating the Switch Continuity Principle Assumed in Non-Intrus...	32	
Appliance Water Disaggregation via Non-Intrusive Load Monitoring (N...	29	
Day-ahead electricity demand forecasting competition: Post-covid pa...	21	2.900
Incorporating Time-Of-Day Usage Patterns Into Non-Intrusive Load Mo...	21	
Approaches to Non-Intrusive Load Monitoring (NILM) in the Home	20	
The Affect of Lifestyle Factors on Eco-Visualization Design	20	
Inspiring energy conservation through open source metering hardware...	19	
On metrics to assess the transferability of machine learning models...	18	
Universal Non-Intrusive Load Monitoring (UNILM) Using Filter Pipeli...	18	
Inspiring energy conservation through open source power monitoring ...	16	
Elements of consumption: an abstract visualization of household con...	16	
Residential Power Forecasting Based on Affinity Aggregation Spectra...	15	3.367
A consumer bill of rights for energy conservation	15	
Calculating the carbon footprint of streaming media: Beyond the myt...	13	
Home Occupancy Agent: Occupancy and Sleep Detection	13	tbd
An intelligent agent for determining home occupancy using power mon...	13	
Tackling the carbon footprint of streaming media	9	
Short-Term Demand Prediction Using an Ensemble of Linearly-Constrai...	9	6.663
Increasing the Accuracy and Speed of Universal Non-Intrusive Load M...	9	
Investigating the performance gap between testing on real and denoi...	7	2.820
A Recurrent Neural Network for Multisensory Non-Intrusive Load Moni...	7	
Stop! Exploring Bayesian Surprise to Better Train NILM	6	
Transmitting Patient Vitals Over a Reliable ZigBee Mesh Network	6	
A nonintrusive load monitoring based on multi-target regression app...	5	3.367
Cognitive Radio Technology: System Evolution	5	
Exploring Bayesian surprise to prevent overfitting and to predict m...	4	
Compressive Non-Intrusive Load Monitoring	3	
CarbonKit: Designing A Personal Carbon Tracking Platform	3	
ODDs: Occupancy Detection Dataset	3	
A Design and Comparative Analysis of a Home Energy Disaggregation S...	2	3.324
Editorial Special Section on COVID-19 Impact on Electrical Grid Ope...	0	2.900
Start-Up Creation: The Smart Eco-efficient Built Environment	0	
Peer-Reviewed Conferences:	37 papers 1,172	
Peer-Reviewed Journals:	17 articles 1,340	67.430
Books Co-authored/Co-edited:	2 books 34	
Grand Totals:	56 works 2,546	67.430

Note: Papers without a citation count are not listed (with the exception of journal papers).