

Neuromorphic Machine Intelligence Lab  
 Department of Cognitive Sciences  
 Department of Computer Science  
 2308 Social & Behavioral Sciences Gateway Building  
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 Lab Website: <http://nmi-lab.org>

## Academic Positions

- Jan. 2019 - Now **Visiting Investigator, A\*STAR I2R Institute for Infocomm Research, Singapore**
- Jul. 2015 - Now **Assistant Professor, University of California Irvine**  
 Department of Cognitive Sciences, Department of Computer Science
- Aug. 2012 - Jun. 2015 **Postdoctoral researcher, University of California San Diego**  
 Institute for Neural Computation, Advisor: Prof. Gert Cauwenberghs  
 Topic: *State-Dependent Probabilistic Inference and Decision-Making in VLSI Spiking Neural Networks*
- Jan. 2011 - Jul. 2012 **Postdoctoral researcher, ETH Zurich and University of Zurich**  
 Institute of Neuroinformatics, Advisors: Prof. Rodney Douglas and Prof. Giacomo Indiveri  
 Topic: *Synthesizing cognition in neuromorphic electronic systems*

## Degrees

- Dec. 2010 **PhD Physics, ETH Zurich, Institute of Neuroinformatics**  
 Thesis: *Towards Spiking Neuron Assemblies as General-Purpose Processors*  
 Advisor: Prof. Rodney Douglas and Prof. Giacomo Indiveri
- Jan. 2006 **MSc Physics, EPFL, Lausanne, Switzerland**  
 Thesis: Study of a Quantum Plaquette Model on a Triangular Lattice,  
 Advisor: Prof. Frederic Mila
- Jun. 2001 **Scientific Matura, College de Candolle, Geneva, Switzerland**

## Grants, Awards and Fellowships

- Jan. 2022 • UCI Innovation Fellow Award, \$10k, PI
- Jul. 2019 - Jun. 2022 • AFOSR, “Cognitive Maps in Rats, Robots, and Men”, \$671k, Co-PI
- Jul. 2019 - Jun. 2022 • Intel, “Loihi Embedded Plasticity Dynamics for Deep Continuous Local Learning”, \$48k PI
- May. 2018 - Apr. 2020 • DARPA L2M, “Super Turing Evolving Lifelong Learning ARchitecture (STELLAR)”, \$ 108k Co-PI
- May. 2018 - Apr. 2021 • NSF CRI, “CI-NEW: Trainable Reconfigurable Development Platform for Large-Scale Neuromorphic Cognitive Computing”, \$ 114k PI
- Jul. 2018 • Intel Corporation, \$ 50k, Telluride Workshop Sponsorship
- Jan. 2017 - Jul. 2021 • KIST, “Learning Cognition in Neuromorphic Electronic Circuits”, \$ 284k PI
- Jul. 2017 - Jun. 2022 • NSF “CAREER: Scalable Neuromorphic Learning Machines”, \$ 625 PI
- Dec. 2016 • 2016 Social Science Assistant and Associate Professor Research Awards “Learning Pattern Recognition in Real-Time with Brain-Inspired Devices”, \$5k
- Oct. 2016 - Sept.2019 • “E2CDA: EXtremely energy efficient Collective ELelectronics (EXCEL)”, National Science Foundation and Semiconductor Research Corporation, \$335k Co-PI

## Grants, Awards and Fellowships (continued)

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|------------------------|---|
| Sept. 2015 - Aug. 2018 | <ul style="list-style-type: none"> <li>• Intel Corporation, “Scalable Event-Driven Neuromorphic Learning Machines for Human Centered Computing”, \$475k PI</li> </ul> |
| Mar. 2016              | <ul style="list-style-type: none"> <li>• NVIDIA Academic GPU Grant \$1k</li> </ul>  |
| Nov. 2015              | <ul style="list-style-type: none"> <li>• UCI Office of Research Travel Award \$910</li> </ul>   |
| Jun. 2012 - Feb.2013   | <ul style="list-style-type: none"> <li>• Swiss National Science Foundation - Advanced Researcher fellowship, \$96k</li> </ul>   |
| Dec. 2007              | <ul style="list-style-type: none"> <li>• NIPS travel award (\$800)</li> </ul>   |

## Teaching experience

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|------------------|--|
| Winter 2020      | <ul style="list-style-type: none"> <li>• Neural Networks and Machine Learning, UC Irvine</li> </ul>                                    |
| Spring 2017-2019 | <ul style="list-style-type: none"> <li>• Quantitative Methods for Cognitive Scientists, UC Irvine</li> </ul>                           |
| Winter 2019      | <ul style="list-style-type: none"> <li>• Neural Networks and Reinforcement Learning, UC Irvine</li> </ul>                              |
| Winter 2018      | <ul style="list-style-type: none"> <li>• Neuromorphic Engineering, UC Irvine</li> </ul>  |
| Fall 2017        | <ul style="list-style-type: none"> <li>• Brain-Inspired Learning Machines</li> </ul>   |
| Spring 2016      | <ul style="list-style-type: none"> <li>• Neural Processing in Artificial Minds, Department of Cognitive Sciences, UC Irvine</li> </ul> |
| Spring 2016      | <ul style="list-style-type: none"> <li>• Computational Statistics, Department of Cognitive Sciences, UC Irvine</li> </ul>              |
| 2008 – 2010      | <ul style="list-style-type: none"> <li>• Teaching Assistance for Physics I and II, ETH Zurich, (4 semesters)</li> </ul>                |

## Mentoring

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|---------|---|
| Current | <ul style="list-style-type: none"> <li>• Kenneth Stewart, Graduate Student, UC Irvine</li> </ul>        |
| Current | <ul style="list-style-type: none"> <li>• Mohammed Fouda, Graduate Student, UC Irvine</li> </ul>         |
| Current | <ul style="list-style-type: none"> <li>• Yue Yin, Graduate Student, UC Irvine</li> </ul>                |
| Current | <ul style="list-style-type: none"> <li>• Andrew Hansen, Junior specialist, UC Irvine</li> </ul>         |
| Current | <ul style="list-style-type: none"> <li>• Takashi Nagata, Graduate student, UC Irvine</li> </ul>         |
| Current | <ul style="list-style-type: none"> <li>• Travis Bartley, Graduate student, UC Irvine</li> </ul>         |
| Current | <ul style="list-style-type: none"> <li>• Dan Bar-Sever, Graduate student, UC Irvine</li> </ul>          |
| 2018    | <ul style="list-style-type: none"> <li>• Edward Hansen, SURF, UC Irvine</li> </ul>                      |
| 2018    | <ul style="list-style-type: none"> <li>• Sukhwan Kim, I-SURF, UC Irvine</li> </ul>                      |
| 2018    | <ul style="list-style-type: none"> <li>• Jacques Kaiser, Visiting Scholar, UC Irvine</li> </ul>         |
| 2018    | <ul style="list-style-type: none"> <li>• Sukhwan Cheung, Visiting Scholar, UC Irvine</li> </ul>         |
| 2017    | <ul style="list-style-type: none"> <li>• Roman Parise, Undergraduate student, UC Irvine</li> </ul>      |
| 2016    | <ul style="list-style-type: none"> <li>• Georgios Detorakis, Postdoctoral Scholar, UC Irvine</li> </ul> |
| 2016    | <ul style="list-style-type: none"> <li>• Meropi Topalidou, Postdoctoral Scholar, UC Irvine</li> </ul>   |
| 2014    | <ul style="list-style-type: none"> <li>• Maruan Al-Shedivat, Graduate student, KAUST</li> </ul>         |
| 2012    | <ul style="list-style-type: none"> <li>• Srinjoy Das, Graduate student, UC San Diego</li> </ul>         |
| 2012    | <ul style="list-style-type: none"> <li>• Bruno Pedroni, Graduate student, UC San Diego</li> </ul>       |
| 2011    | <ul style="list-style-type: none"> <li>• Dane Corneil, Graduate Student ETHZ</li> </ul>                 |
| 2010    | <ul style="list-style-type: none"> <li>• Jonathan Binas, Undergraduate student, ETHZ</li> </ul>         |

## Professional activities

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|------------------------------|--|
| Co-Chair                     | <ul style="list-style-type: none"> <li>• Neuromorphic Cognition Engineering Workshop 2019</li> </ul>       |
| Co-Organizer                 | <ul style="list-style-type: none"> <li>• Neuromorphic Cognition Engineering Workshop 2018</li> </ul>       |
| Scientific Program Organizer | <ul style="list-style-type: none"> <li>• Cognitive Neuromorphic Engineering Workshop 2018-2019</li> </ul>  |
| Topic Leader                 | <ul style="list-style-type: none"> <li>• Neuromorphic Cognition Engineering Workshop 2017</li> </ul>       |
| Co-Organizer                 | <ul style="list-style-type: none"> <li>• MURI Winter School, Jan. 7-10 2014</li> </ul>                     |
| Co-Organizer                 | <ul style="list-style-type: none"> <li>• ISCA Neuromorphic Architectures workshop, Jun. 14 2014</li> </ul> |
| Associate Editor             | <ul style="list-style-type: none"> <li>• Frontiers in Neuroscience</li> </ul>                              |
| Reviewer                     | <ul style="list-style-type: none"> <li>• Nature Communications, Machine Intelligence, Materials</li> </ul> |
| Reviewer                     | <ul style="list-style-type: none"> <li>• PLOS Computational Biology</li> </ul>                             |
| Reviewer                     | <ul style="list-style-type: none"> <li>• IEEE TNNLS, TCAS, ISCAS, BioCAS, AICAS</li> </ul>                 |

## Language Skills

- English, French, Turkish : Native
- German and Swiss-German : Fluent
- Chinese (mandarin) : Basic