gaier adam

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education

phd | computer science
inria, university of lorraine (fr)
2016-2020 (expected)
- research: design exploration, evolutionary computation, bayesian optimization
- advisors: Jean-Baptiste Mouret, Alexander Asteroth

msc | autonomous systems
bonn-rhein-sieg university (de)
2012-2019
- research: robotics, evolutionary optimization, neuroevolution, data-efficient optimization

msc | evolutionary and adaptive systems
university of sussex (uk)
2011-2012
- research: biologically-inspired computation, insect intelligence, neuroevolution, hypernetworks

bsc | computer science
richmond american international university in london (uk)
2002-2005
- research: species-conserving genetic algorithms for design

recognition

- Spotlight (*NeurIPS*) 2019
  Top 2.5% of submissions to *Advances in Neural Information Processing Systems*
- Best Paper Award (GECCO) 2018
  Voted best contribution in the Complex Systems track of the *Genetic and Evolutionary Computation Conference*
- Best Paper Award (GECCO) 2017
  Voted best contribution in the Complex Systems track of the *Genetic and Evolutionary Computation Conference*
- Best Paper Award (AIAA) 2017
  Awarded by expert panel at AIAA Multidisciplinary Analysis and Optimization Conference
- Drive-E Studienpreis 2015
  German national award for outstanding student work in electric mobility

overview

Nomadic American researcher with eclectic background and research experience spanning evolutionary computation, robotics, and machine learning. Doctoral research concentrated on **integration of evolutionary and machine learning** to solve **real-world design and control** problems. Deep background in biologically-inspired computation, focused on neuroevolution, diversity, and novelty-based approaches. Fascinated by creativity, embodiment, and innateness in machine intelligence.

→ **Google Brain internship** resulting in a **Spotlight presentation at NeurIPS 2019**
→ Earned **three best paper awards** over course of PhD at top of field conferences in evolutionary computation and aerodynamics design optimization
→ Background in **evolutionary computation, robotics, and machine learning**

experience

google brain (tokyo, japan) | research intern
2019
- developed approach to evolve weight agnostic neural networks (WANN) which perform without explicit weight training (weightagnostic.github.io/) 🔗
- published tool for replication and continuation of WANN experiments 🔗
- published general-purpose neuroevolution tool 🔗

inria (nancy, france) | doctoral researcher
2016 - present
- developed approach to combine Bayesian optimization and quality-diversity techniques for design exploration in computationally expensive domains
- published source code of approach (Surrogate-Assisted Illumination) applied to aerodynamic optimization 🔗
- improved data-efficiency of state-of-the-art neuroevolution algorithms by integrating machine learning techniques into the evolutionary process
- analyzed ability of quality-diversity techniques to tackle problems in highly deceptive objective spaces

bonn-rhein-sieg university (bonn, germany) | research associate
2012 - present
- developed techniques for aerodynamic design optimization and exploration
- evolved neural networks for terrain-aware fuel efficient vehicle control
- designed and taught bachelor's and master's level courses on biologically-inspired and evolutionary computation

tsinghua international school (beijing, china) | cs department head
2009 – 2011
- created school-wide CS curriculum for new K-12 international school
- taught CS courses, including graphic design, programming, and robotics, to 7th to 12th grade students of mixed language abilities

various (beijing, china) | bartender, poker pro, restaurant manager
2006 - 2009
Worked as a bartender, sound engineer, and musician at underground rock venue D-22 – paid the bills by playing poker on and offline. Managed the Kro's Nest – an American-style pizza restaurant with an all Chinese staff – and became marketing and IT lead as the first restaurant grew to become a chain of five.
- learned Chinese as a bartender, musician, and restaurant manager
- developed grit, mental resilience, and self-management skills as a poker player
- honed graphic design skills creating ads as marketing lead of a restaurant chain