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

awards

- Best Paper Award 2018
  Genetic and Evolutionary Computation Conference
- Best Paper Award 2017
  Genetic and Evolutionary Computation Conference
- Best Paper Award 2017
  AIAA Multidisciplinary Analysis and Optimization Conference
- Drive-E Studienpreis 2015
  National award for outstanding work in the electric mobility
- Pegge Scholarship 2011
  High potential Evolutionary and Adaptive Systems student

overview

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

experience

google brain (tokyo, japan) | research intern
2019

- developed methods to evolve weight agnostic neural networks (WANN) architectures which perform with random weights (weightagnostic.github.io/)
- published tool for replication and continuation of WANN experiments
- published general-purpose neuroevolution tool

inria (nancy, france) | doctoral researcher
2015 - 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 network controllers for terrain-aware fuel efficient vehicle control
- designed and taught masters level courses on 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 to 7th to 12th grade students of mixed language abilities

various (beijing, china) | bartender, poker player, restaurant manager
2006 - 2010

Worked as a bartender, sound engineer, and musician at underground rock venue D-22 while supporting myself playing poker. Managed the Kro's Nest, a pizza place with all Chinese staff, becoming marketing lead when the restaurant became a chain.

- 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