Zimeng Lyu

Contact Information
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EDUCATION

Rochester Institute of Technology Rochester, NY
PhD in Computer Science *Expected 2024*
Advisor: Travis Desell
GPA: 3.92

Syracuse University Syracuse, NY
MS in Computer Engineering *2018*

Nanjing Agricultural University Nanjing, China
BE in Electrical Engineering *2016*

PROFESSIONAL EXPERIENCE

Research Assistant 2019 - present
Rochester Institute of Technology Rochester, NY

- Developed **time series forecasting** Machine Learning models for coal fired power plant operating parameters. The models are in production use by Microbeam LLC.
- Main contributor of open source **neuroevolution neural architecture search** Github repo (**C++**) https://github.com/travisdesell/exact
- Used **neuroevolution** to evolve **recurrent neural networks** for coal fired power systems, wind turbine engine and aviation **time series data predictions**
- Incorporated **recurrent neural networks** generated by **neuroevolution** into production software used at a coal-fired power plant (Gecco 2021 Workshop)
- Explored speciation strategies in evolutionary algorithms for **time series data predictions** (EvoApps 2021)
- Explored the effect of different weight initialization and inheritance methods in **neuroevolution** for **time series data predictions** (EvoApps 2021)
- **GECCO 2020 best paper nominee:** Improving **neuroevolutionary transfer learning** of deep recurrent neural networks through network-aware adaptation

Machine Learning Research Engineer June 2018 - May 2019
Quantifly LLC Syracuse, NY

- Planned and prepared a research and development road map document for the Quantifly executive team
- Used **convolutional neural networks** to do **semantic segmentation** (Segnet) on images

- Used **SIFT**, **template matching**, **OpenCV** and other methods to conduct transportation studies
- Researched and developed **machine learning** models to **compare image patches** and custom algorithms to detect and analyze objects
- **Utility Patent**: Vehicle Parking Data Collection System and Method. Publication No. US-2020-0272837-A1
- Proficient in training **convolutional neural network** models with **GPU Configurations**. Experience with **large proprietary aerial image data sets**

PUBLICATIONS

- **Zimeng Lyu**, AbdElRahman ElSaid, Joshua Karns, Mohamed Mkaouer and Travis Desell. An Experimental Study of Weight Initialization and Lamarckian Inheritance on Neuroevolution. The 24th International Conference on the Applications of Evolutionary Computation (EvoStar: EvoApps 2021). Online. April 7-9, 2021. **h5-index:16**

- **Zimeng Lyu**, AbdElRahman ElSaid, Joshua Karns, Mohamed Mkaouer and Travis Desell. Improving Distributed Neuroevolution Using Island Extinction and Repopulation. The 24th International Conference on the Applications of Evolutionary Computation (EvoStar: EvoApps 2021). Online. April 7-9, 2021. **h5-index:16**

- **Zimeng Lyu**, Shuchita Patwardhan, David Stadem, James Langfeld, Steve Benson, and Travis Desell. Neuroevolution of Recurrent Neural Networks for Time Series Forecasting of Coal-Fired Power Plant Data. In Proceedings of the Genetic and Evolutionary Computation Conference Companion, pp. 1735-1743. July 2021. **h5-index:38**

- AbdElRahman ElSaid, Joshua Karns, **Zimeng Lyu**, Alexander Ororbia and Travis Desell. Continuous Ant-Based Neural Topology Search. The 24th International Conference on the Applications of Evolutionary Computation (EvoStar: EvoApps 2021). Online. April 7-9, 2021. **h5-index:16**

- AbdElRahman ElSaid, Joshua Karns, **Zimeng Lyu**, Daniel Krutz, Alexander Ororbia and Travis Desell. Improving Neuroevolutionary Transfer Learning of Deep Recurrent Neural Networks through Network-Aware Adaptation. The Genetic and Evolutionary Computation Conference (GECCO 2020). Cancun, Mexico. July 8-12, 2020. **Best paper nominee**. **h5-index:38**

- AbdElRahman ElSaid, Joshua Karns, **Zimeng Lyu**, Daniel Krutz, Alexander G. Ororbia and Travis Desell. Neuro-Evolutionary Transfer Learning through Structural Adaptation. The 23nd International Conference on the Applications of Evolutionary Computation (EvoStar: EvoApps 2020). Seville, Spain. April 15-17, 2020. **h5-index:16**

- Travis Desell, AbdElRahman ElSaid, **Zimeng Lyu**, David Stadem, Shuchita Patwardhan and Steve Benson. Long Term Predictions of Coal Fired Power Plant Data Using Evolved Recurrent Neural Networks. at - Automatisierungstechnik. Volume 68: No 2, Pages 130-139. January, 2020.

HONORS, AWARDS

Evostar 2021 Outstanding Student	2021
China National Scholarship	2013
China Undergraduate Mathematical Contest in Modeling	2nd place, 2014
Merit Student Title; 1st Class Scholarship	2013