

Aaron Tuor

Data Scientist
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Curriculum Vitae

Education

2014
2017

MS Computer Science, *Western Washington University (WWU)*, GPA - 3.8, Specialized in Machine Learning.

2011
2014

BA Linguistics, *Western Washington University*, GPA - 3.9, Magna cum Laude. Minor in Mathematics

Research Experience

2017

Data Scientist, *Pacific Northwest National Laboratory (PNNL)*.

- Deep learning applications: Biosurveillance, Cybersecurity, Remote Sensing, Image Analysis

2017

Graduate Research Assistant, *WWU Computer Science Department*.

- Developed software for system log anomaly detection through natural language processing recurrent neural network language models.

2016
2017

Research Intern: National Security Internship Program, *PNNL*.

- Lead developer for open source deep learning system log anomaly detection software.

2014
2017

Graduate Researcher, *WWU Computer Science Department*.

- Machine learning research advised by Associate Professor Brian Hutchinson.

Teaching Experience

2014
2016

Graduate Teaching Assistant, *WWU Computer Science Department*.

- CSCI 497/571 Machine Learning: Java, Matlab, Python, Tensorflow, C
- CSCI 145 Computer Programming and Linear Data Structures: Java
- CSCI 140/141 Introduction to Programming: Python/C++
- CS 101/102 Computer Literacy/Web Design : HTML, CSS, Libre Office Calc

2013

Math Department Grader, *WWU Mathematics Department*.

- Graded daily homework assignments for university pre-calculus class.

Open Source Software

2017

Safekit.

Deep Learning package for system log anomaly detection.

2016

Automated Neural Graph Toolkit.

Extensive open source package of Tensorflow, Numpy, and Python code modules.

2014

Reckit.

Matlab implementation of low rank matrix factorization, and joint matrix factorization for recommender systems.

Projects

2017

Biofeeds, PNNL.

Natural language processing for biosurveillance using automated news feeds.

2017

2018

Fiery Future, PNNL.

Deep learning models for automated vegetation mapping from satellite imagery and ecological niche factors.

2017

MONSTR: Mining Online Narratives from Social MulTimedia Relationships, PNNL.

Deep learning and computer vision.

2016

2018

Stream Adaptive Foraging For Evidence, PNNL/WWU.

Streaming analytics for cyber security use case.

2014

2016

Reckit, WWU.

Matrix factorization, joint matrix factorization, and deep learning for recommendation systems.

Publications

[Brown et al., 2018]

Brown, A., Tuor, A., Hutchinson, B., and Nichols, N. N. (2018). **Recurrent Neural Network Attention Mechanisms for Interpretable System Log Anomaly Detection**. *arXiv preprint*.

[Olney et al., 2018]

Olney, R., Tuor, A., Jagodzinski, F., and Hutchinson, B. . (2018). **Protein Mutation Stability Ternary Classification using Neural Networks and Rigidity Analysis**. *Proceedings of 10th International Conference on Bioinformatics and Computational Biology (BICOB 2018)*.

[Tuor et al., 2018]

Tuor, A., Baerwolf, R., Knowles, N., Hutchinson, B., Nichols, N., and Jasper, R. (2018). **Recurrent Neural Network Language Models for Open Vocabulary Event-Level Cyber Anomaly Detection**. *Proceedings of Artificial Intelligence in Cyber Security Workshop, AAAI 2018*.

[Tuor et al., 2017a]

Tuor, A., Kaplan, S., Hutchinson, B., Nichols, N., and Robinson, S. (2017a). **Deep learning for unsupervised insider threat detection in structured cybersecurity data streams**. *Proceedings of Artificial Intelligence in Cyber Security Workshop, AAAI 2017*.

[Tuor et al., 2017b]

Tuor, A., Kaplan, S., Hutchinson, B., Nichols, N., and Robinson, S. (2017b). **Predicting User Roles from Computer Logs Using Recurrent Neural Networks**. *Proceedings of Association for Advancement of Artificial Intelligence 2018*, pages 4993–4994.

Awards



Track Global Fellowship in Computer Science, WWU.

Track Global Fellowship in Computer Science, WWU.

Computer Science Graduate Fellowship, WWU.

Outstanding Academic Achievement, WWU Linguistics, WWU.

President's List (Winter, Fall), WWU.

Non-Traditional Student Scholarship, WWU.