

Salman Mohamadi | Curriculum Vitae

West Virginia University, Department of Computer Science and Electrical Engineering

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Research Experience

○ Deep Learning Research Lab

- Executed various SOTA deep learning generative models including various GAN models (Cycle GAN, Pix2pix, Conditional GAN, SRGAN, STARGAN) for image and time series datasets
- Developed a GAN-based model to simultaneously perform super-resolution and domain translation on Iris image data for identification purposes.
- Developed a deep active learning model for data efficient classification on image data
- Developed a new model for self supervised representation learning
- Developed a time series analysis and modeling framework for human genome sequences

○ Digital Communication Research Lab

- Developed a time series model to analyse EEG signals for epileptic seizure prediction
- Executed a number of time series forecasting methods

Education

○ Ph.D., Graduate Research Assistant

West Virginia University

2019–Present

Morgantown, WV, USA

- **Major: Electrical Engineering and Computer Science**
 - **Thesis: Active Uncertainty Representation Learning**
- Total GPA: 4/4
- Under the supervision of **Dr. Donald Adjeroh** and **Dr. Gianfranco Doretto**

Research Interests

- **General:** Machine Learning (ML), Deep Learning (DL), Computer Vision, and Their application with Bioinformatics
- **Specific:** Generative Models (GANs, VAEs), Uncertainty Representation in Deep Learning, Self-Supervised Learning, and Active Learning

Selected Publications

- **Deep GAN-based Cross-Spectral Cross-Resolution Iris Recognition**
IEEE Transactions on Biometrics, Behavior, and Identity Science (T-BIOM); August, 2021
- **Deep Active Ensemble Sampling**
Accepted to Asian Conference on Computer Vision (ACCV, 2022)
- **FUSSL: Fuzzy Uncertain Self-Supervised Learning**
Accepted to IEEE/CVF Winter Conference on Applications of Computer Vision (WACV, 2022)
- **GUESS: Generative Uncertainty Ensemble For Self-Supervision**
To be submitted to IEEE transaction of Image Processing
- **Contemplating on the Evolution of Loss Functions for Self-Supervised Learning**
To be submitted to IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)
- **ARIMA-GARCH Modeling For Epileptic Seizure Prediction**
IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2017, New Orleans, LA, USA
- **ARIMA-GARCH, A Statistical Modeling For Epileptic Seizure Prediction (extended version of ICASSP 2017)**
26th Biomedical Engineering Conference, World Academy of Science, Engineering and Technology, 2017, London, United Kingdom
- **A New Framework For Spatial Modeling And Synthesis of Genomic Sequences,**
IEEE International Conference on Bioinformatics and Biomedicine, 2020, South Korea
- **An Information-Theoretic Framework for Identifying Age-Related Genes Using Human Dermal Fibroblast Transcriptome Data**
IEEE International Conference on Bioinformatics and Biomedicine, 2021, Houston, TX, USA
- **Deep Bayesian Active Learning, A Brief Survey on Recent Advances**
arXiv preprint arXiv:2012.08044, 2021
- **Detection and Statistical Modeling of Birth-Death Anomaly,**
arXiv preprint arXiv:1906.11788, 2019.

Selected Academic Projects

- **Approximate Thompson Sampling for Active Learning (2021)**
- **Uncertainty Representation in Loss Function and Architectures for Self-Supervised Learning(2022)**
- **Beyond Fundamental Limits of Single Supervisory Signal for Self Supervised Learning (2022)**

- **Long-Term Epileptic Seizure Prediction (2016)**
- **A deep Learning Approach for 3-D Image Reconstruction Using Clinical CT and MRI Images (2016)**
- **Deep GAN-based Cross-Spectral Cross-Resolution Iris Recognition, CITeR (NSF) Project (2019-2021)**
- **A Neural Network Based Approach for Gene Expression Based Age Prediction, CITeR (NSF) project (2020-2021)**
- **A survey on Deep Bayesian Active Learning(2020-2021)**
- **Statistical Analysis on Covid-19 Genome Sequences, and Sequencing Accuracy Modification, NSF project, (2020-2021)**
- **Multi-Scale Integrative Approach to Digital Health, NSF Project (2020- Present)**

Computer skills

Programming Languages

- Matlab
- Python
- C++
- R

Platforms

- Tensorflow
- PyTorch
- L^AT_EX
- Gnuradio

References

- Nasser M. Nasrabadi, PhD, Fellow of IEEE
 - Professor, West Virginia University, School of Computer Science and Electrical Engineering, Director of Deep Learning Laboratory
 - **nasser.nasrabadi@mail.wvu.edu**
- Donald Adjero, PhD
 - Professor, West Virginia University, School of Computer Science and Electrical Engineering, Head of Department of Computer Science
 - **donald.adjero@mail.wvu.edu**
- Gianfranco Doretto
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