NA ZHANG

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EDUCATION

West Virginia University, Morgantown, WV, US *08/2016 - 05/2023*
Ph.D. in Computer Science
Beihang University, Beijing, China *09/2009 - 01/2012*
Master's Degree in Computer Science
Beijing Information Science and Technology University, Beijing, China *09/2005 - 07/2009*
Bachelor's Degree in Computer Science, GPA: 3.8

TECHNICAL SKILLS

Computer Vision	Face Recognition, Face Morphing Attack/Defense, Facial Micro-Expression
Machine Learning	Deep Learning (DL), Classification/Regression/Clustering Algorithms
DL Frameworks	PyTorch, Tensorflow
Python Packages	NumPy, Pandas, Scikit-Learn, Scikit-Image, Matplotlib, SciPy, OpenCV
Languages	Python, Matlab, and SQL
Data Management	Data Gathering/Cleaning/Processing/Visualization, Statistical Analysis

RESEARCH PROJECTS

Face Dynamics Analysis for Autism Diagnosis on Interview Videos 07/2019 - 04/2023
Research Assistant *West Virginia University*

· Constructed a classification system to diagnose autism with different severity levels in hour-long videos.
· Achieved 91.72% accuracy that is comparable to the standardized diagnostic scales.
· Designed a system to classify autism/control groups by extracting micro-expression changes feature.
· Obtained 97.32% accuracy showing the efficiency of capturing subtle facial movements.

Facial Traits Rating Prediction 12/2020 - 06/2021
Research Assistant *West Virginia University*

· Designed a deep regression model for facial traits rating prediction by transfer learning
· Investigated the difference between autism and normal groups on making facial trait judgement.
· Demonstrated different facial areas are involved for traits judgement between autism and normal.

Transformer-based Face Morphing and De-Morphing 12/2021 - 09/2022
Research Assistant *West Virginia University*

· Developed a transformer-based scheme for face morphing and de-morphing.
· Constructed special losses (face-related/image-related) to learn an optimized latent code of a given face.
· Demonstrated its superiority to CNN-based morphing methods.

Fusion-based Few-Shot Face Morphing Attack Fingerprinting 09/2020 - 11/2021
Research Assistant *West Virginia University*

· Extended morphing attack detection from binary to multiclass morphing attack fingerprinting.
· Proposed a few-shot learning framework to learn fusion features of different sensor pattern noise.
· Collected a high-resolution Doppelgänger dataset (look-alike face pairs without biological connections).
· Extensive experiments showed the outstanding performance.

Face Recognition (FR) and Face Quality Analysis 08/2016 - 06/2019
Research Assistant *West Virginia University*

· Explored the impact of different face qualities on FR performance by investigating their relationship.
· Gathered a dataset with 356.4K face images of Chinese celebrities crawled online after cleaning.

Software Development Process Management 12/2009 - 12/2011
Research Assistant *Beihang University*

· Developed Software Project Management System/Defect Measurement Tool using C# on .Net framework with MySQL database.

Wireless Network Management System 03/2010 - 09/2010
Research Assistant *Beihang University*

· Implemented Wireless Network Management System to monitor wireless access points and controllers of Beijing subway transportation wireless network using C# on .Net framework with MySQL.

WORK EXPERIENCE

Software Engineer 07/2012 - 03/2015
Beijing Zhongdian Puhua Information Technology Co., Ltd, Beijing, China

· Implemented State Grid Infrastructure Control System/State Grid Information Resources System using Java, JSP, Oracle and TortoiseSVN.
· Successfully applied for two national patents about techniques used in these systems.

AWARDS

Second Class Scholarship, Beihang University *2010*
National Aspiration Scholarship, Beijing, China *2007*
Excellent Student Award; First Class Scholarship, 5 times, BISTU *2005-2009*
Third Class Award of National Physics Contest for College Student, Beijing, China *2007*

PUBLICATIONS

1. Discriminative few shot learning of facial dynamics in interview videos for autism trait classification. **Na Zhang**, Mindi Ruan, Shuo Wang, Lynn Paul, and Xin Li. IEEE Transactions on Affective Computing (2022)
2. Fusion-based Few-Shot Morphing Attack Detection and Fingerprinting. **Na Zhang**, Shan Jia, Siwei Lyu, and Xin Li. IEEE Transactions on Biometrics, Behavior, and Identity Science.(Revision)
3. MorphGANFormer: Transformer-based Face Morphing and De-Morphing. **Zhang, Na**, Xudong Liu, Xin Li, and Guo-Jun Qi. arXiv preprint arXiv:2302.09404 (2023).
4. What is the challenge for deep learning in unconstrained face recognition?. Guodong Guo, **Na Zhang**. 13th IEEE International Conference on Automatic Face and Gesture Recognition. (2018).
5. A survey on deep learning based face recognition. Guodong Guo and **Na Zhang**. Computer Vision and Image Understanding(CVIU). 2019
6. Video-based Contrastive Learning on Decision Trees: from Action Recognition to Autism Diagnosis. Mindi Ruan, Xiangxu Yu, **Na Zhang**, Chuanbo Hu, Shuo Wang, and Xin Li. The ACM Multimedia Systems Conference 2023 (MMSys'23)
7. Comprehensive social trait judgments from faces in autism spectrum disorder. Runnan Cao, **Na Zhang**, Hongbo Yu, Paula J. Webster, Lynn K. Paul, Xin Li, Chujun Lin, and Shuo Wang. (2022).