XIAOCHEN (NIGEL) LU

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EDUCATION

NYU Shanghai, Shanghai, China — Expected graduation date: May 2023
Major: **Data Science + Business and Finance** — Minor: **Computer Science**
Cumulative GPA: **3.908/4.0** — Data Science Major GPA: **3.963/4.0**

PUBLICATION & PREPRINT

[1] Hanan Salam, Saloni Rakholiya, Jialin Li, **Nigel Lu**. Multimodal Online Student Engagement (MOSE) Dataset for Studying Personality and Engagement. *Submitted to the Nuclear Physics B, November 2022*
[2] Li Guo, Haoming Liu, Chengyu Zhang, Yuxuan Xia, **Xiaochen Lu**, and Zhenxing Niu. Boosting Few-Shot Segmentation via Instance-Aware Data Augmentation and Local Consensus Guided Cross Attention. *Submitted to the 2023 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*

WORK EXPERIENCE

Infrastructure Engineering Intern, **eBay Inc.**, Shanghai, China — Sep 2022 to Present
- Build and enhance eBay's Average-Time-to-Business dashboard for live monitoring of cluster status to facilitate smoother rollouts
- Harness the power of ReactJS, Antd, Redux, and JS Plugin to create user-friendly frontend pages for eBay's cloud cluster console
- Continuously optimize the frontend codebase and business logic for faster load time, better user experience, and better code readability. This process includes but is not limited to componentization of UI code, reduced number of API calls, and documentation

Full-stack Engineer, **Kaizntree Ltd.**, Hong Kong SAR — Nov 2021 to Sep 2022
- Establish a startup with three of my college friends and four other employees, helping more than 30 small businesses to simplify their workflow
- Leverage the power of VueJS and Django's versatility to build a one-stop management system for small businesses. The SPA (single-page-application) we built integrates an all-in-one workflow from raw material purchase to building and selling products (visit Kaizntree website here)

Deep Learning Intern, **Jiangsu Expsoft Ltd.**, Wuxi, China — May 2021 to Sep 2021
- Build a powerful and easy-to-use system for companies / the government to manage auditing tasks with a team of 18 people
- Use MobileNetV2 as the backbone and Meta's (previously Facebook) DeepFace library to build a two-stage liveness anti-spoofing face recognition model in PyTorch. Train the model on CIFAR-SURF dataset I pre-processed and achieve a production-ready accuracy
- Deploy the model as a web application accessible via both UI and API endpoint using Python Flask

RESEARCH EXPERIENCE

Few-Shot Segmentation with Adaptive Data Augmentation and Cross Attention
Research Assistant advised by Professor Li Guo, **NYU Shanghai** — Mar 2022 to Present
- Propose an instance-aware data augmentation strategy to improve support image diversity and reduce distribution inconsistency between query and support images in low-data regimes.
- Incorporate a cross attention module with 4-D dense correlation refined by local consensus constraints to align query and support features for improved generalization ability
- Set up a neat and re-usable visualization codebase to help verify and visualize the results of the proposed model. And build a neat and scalable codebase for few-shot segmentation research in PyTorch
- Co-author a paper and submit it to the conference of **CVPR 2023**

Multimodal Online Student Engagement Dataset
Research Assistant advised by Professor Hanan Salam, **SMART-LAB NYU Abu Dhabi** — May 2021 to Mar 2022
- Build an online learning engagement detection dataset with post-class survey results and open it to the research community
- Based on PyTorch, OpenCV and OpenFace, establish a CNN-RNN hybrid baseline model for spatial and temporal processing
- Investigate the correlation between post-class self-evaluation results and personality surveys to provide insights on how personality may relate to engagement level in online learning. Apply various significance tests (e.g., T-test) to verify the potential correlations
- Co-author a paper and submit it to the **Nuclear Physics B** journal

PROJECT EXPERIENCE

Evaluating Parameter-Efficient Tuning Methods in Low-Data Regimes
Course Project mentored by Professor Sam Bowman, **NYU Center of Data Science** — Mar 2022 to May 2022
- Reproduce four SOTA parameter-efficient tuning methods based on HuggingFace and OpenDelta libraries. Then evaluate the performance of these methods on various NLP tasks (e.g., sentiment analysis, Q&A) with different portions of training samples
- Verify and conclude that a parameter-efficient tuning method with a larger ratio of tunable parameters generally results in better performance across NLP tasks but usually converges slower regardless of the sufficiency of data

Real-time Object Detection in Autonomous Driving Scenarios
Course Project mentored by Professor Augustin Cosse, **NYU College of Arts and Science** — Sep 2021 to Dec 2021
- Pre-process and prepare the CityScape dataset for object detection under autonomous driving scenarios (e.g., remove classes irrelevant to autonomous driving). Then fine-tune the YOLOv3 model on the prepared dataset: by freezing the feature extraction backbone DarkNet53 and fine-tuning the feature pyramid network to detect better what matters in driving situations
- Achieved a detection frame rate of 42 on the personal computer, with an mAP of 49.6% when transferred to images outside the

VOLUNTEER EXPERIENCE

Teacher, **Steppingstones Shanghai** — Oct 2019 to Dec 2019
- Teach English during weekends for a class of 52 elementary-level children of migrant workers in Shanghai

SKILLS

Languages: Native speaker of Chinese, Working Proficiency in English, with a TOEFL score of 110, GRE score of 324+4
Coding Skills: Python, PyTorch, JavaScript (ES6), ReactJS, VueJS, HTML5, CSS3, LaTeX, SQL, Markdown, Git, Bash