CHANGCHENG FU

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EDUCATION

University of Southern California — *Aug 2023 - Present*
Ph.D. in Computer Science — GPA: 3.85/4.00
Brown University — *Sep 2021 – May 2023*
Master of Science in Computer Science — GPA: 4.00/4.00
University of Illinois at Urbana-Champaign — *Aug 2017 – May 2021*
Bachelor of Science in Computer Science with High Honors — GPA: 3.89/4.00

- Dean's List: Fall 2017 – Fall 2018, Fall 2019 – Fall 2020
- James Scholar: Spring 2019 - Spring 2021

PUBLICATION

[1] *Do Grounded Language-Image Models Help Long-term Action Anticipation in Egocentric Videos?*
Changcheng Fu*, Ce Zhang*, Shijie Wang, Nakul Agarwal, Kwonjoon Lee, Chiho Choi, Chen Sun.
WACV 2024

[2] *AntGPT: Can Large Language Models Help Long-term Action Anticipation from Videos?*
Qi Zhao*, Shijie Wang*, Ce Zhang, **Changcheng Fu**, Minh Quan Do, Nakul Agarwal, Kwonjoon Lee, Chen Sun.
ICLR 2024

(*equal contribution)

REVIEW EXPERIENCE

Conference Reviewer: CVPR, ICCV, ECCV, ICLR, WACV

RESEARCH EXPERIENCE

IRIS Computer Vision Lab, University of Southern California — Los Angeles, CA
Advised by Prof. Ramakant Nevatia — *Aug 2023 – Present*

- Conduct research on **vision-language models (VLMs)** with a focus on **mistake detection**, robustness evaluation, and multimodal failure analysis
- Contribute to the **IRAPA Person Re-Identification (ReID)** project
  - Investigated **appearance-based** methods for cross-view invariance using multi-view human observations
  - Enhanced the **Pose & Shape Encoding** pipeline by incorporating additional modalities (silhouettes, 2D/3D skeletons) to improve viewpoint-robust identity representation
- Lead development of an **Open-World Semantic Role Labeling (OpenSRL)** pipeline for video understanding
  - Designed a multimodal system that uses LLMs to identify verbs, arguments, and semantic roles in the VidSitu dataset
  - Built a **grounded SRL module** that uses LVLMs themselves as grounding hints (LLaVA-OV, Qwen3-VL, GPT-o3, etc.) to predict and refine role-specific object locations in video frames, replacing reliance on external detectors
  - Developed a combination of IoU-based and LLM-based evaluation frameworks for better measuring the accuracy and effectiveness of pipeline

PALM Lab, Brown University Providence, RI
Advised by Prof. Chen Sun *Jan 2022 – Dec 2023*

- Conduct research on the long-term action anticipation (LTA) problem in egocentric videos
    - Investigated how objects feature (appearance, category, spatial position) provide cues to recognize and predict sequential human actions
    - Evaluated and proved the transferability of Grounded Language-Image Pretraining (GLIP)'s object-centric representation to LTA
    - Designed Text Prompt Strategy to obtain object prompts for GLIP
    - Originated transformer-based neural architecture by utilizing "retrieved" relevant objects in cluttered scenes

SELECTED RESEARCH PROJECTS

Comparing the performance of Zero-shot prediction between GLIP and CLIP Providence, RI
Advised by Prof. Stephen Bach *Oct 2022 – Dec 2022*

- Created a two-step approach to compare Contrastive Language-Image Pretraining (CLIP) with Grounded Language-Image Pretraining (GLIP) in theorical way and their zero-shot ability on downstream tasks

Addressing Limitations of Slot Attention using a Multiscale Hierarchical Approach Providence, RI
Advised by Chen Sun *Jan 2022 – May 2022*

- Explored methods to extract object-centric representations using Slot Attention
- Proposed a multiscale hierarchical slot attention module to disambiguate objects and to adapt to varying scene complexities by learning the appropriate feature scales it needs

Crosswalk Detection with Rotation Bounding Box Providence, RI
Advised by Chen Sun *Sep 2021 – Dec 2021*

- Created crosswalk dataset containing 200+ bird-eye views city images with crosswalk annotations
- Built a pipeline with ResNet Image Classifier and YOLO detection model to read aerial map images, classify their categories and pass appropriate images for detection

PROFESSIONAL EXPERIENCE

Gausscode Technology, Inc. Chongqing, China
Backend Developer *May 2019 – Aug 2019*

- Developed 7 APIs for consumer service and utility tools on Spring Boot and Maven
- Refactored CALO product into several small services to reduce single package size and build time for all 15 members
- Implemented MySQL Aggregation for joining multiple databases to summarize updated data into a small database for specific KPI score calculation
- Explored and improved current product algorithm to increase 10% efficiency during fetching process

Campus 360 Champaign, IL
Backend Developer *Aug 2018 – May 2020*

- Created mobile application using React Native combined with Express.js and Sequelize to provide platform for UIUC on-campus students to gain life service information, attracted 1,000+ active users
- Designed and Implemented flea market service and dealer service, increasing active users
- Led 15+ junior or senior standing students to fix bugs and create new APIs

SKILLS

Programming Python • PyTorch • Git • LaTeX • Databases (MySQL, NoSQL)
(Former) C++ • Java • React Native
Hobbies Piano • Table-tennis • Photography • Anime