Fangrui Zhu

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Education	**Doctor of Philosophy, Computer Science** *Northeastern University, 2021.9 – present*

Doctor of Philosophy, Computer Science   *Northeastern University, 2021.9 – present*
- Advisor: Prof. Huaizu Jiang.
- Working on visual relationship detection.

Master of Science, Statistics   *Fudan University, 2018.9 – 2021.7*
- GPA: 3.58/4.0.
- Advisor: Prof. Yanwei Fu.
- Working on statistical learning and computer vision.
- Thesis: Self-supervised representation learning from videos by exploiting spatio-temporal consistency.

Bachelor of Engineering, Software Engineering   *Tongji University, 2014.9 – 2018.7*
- GPA: 4.68/5.0, Rank: 6/165.
- Advisor: Prof. Lin Zhang & Prof. Shuang Liang.
- Software development and testing, architecture design and process management.
- Research on computer vision.
- Thesis: Learning pedestrian attributes for person re-identification.

Research Interests
- Multi-modal visual relationship detection
- Visual grounding

Publications and Preprints

[1] **Fangrui Zhu**, Jianwei Yang, Huaizu Jiang. A Versatile Transformer for Unified, Flexible, and Open-vocabulary Visual Relationship Detection. (under review) [PDF]

[2] Zeyu Han, **Fangrui Zhu**, Qianru Lao, Huaizu Jiang. Zero-shot Referring Expression Comprehension via Structural Similarity Between Images and Captions, arXiv 2311.17048. [PDF]

[3] **Fangrui Zhu**, Yiming Xie, Weidi Xie, Huaizu Jiang. Diagnosing Error in Human-object Interaction Detectors, arXiv 2308.08529. [PDF]

[4] **Fangrui Zhu**, Yi Zhu, Li Zhang, Chongruo Wu, Yanwei Fu, Mu Li. A Unified Efficient Pyramid Transformer for Semantic Segmentation, 2021 Proceedings of the IEEE/CVF International Conference on Computer Vision Workshop (ICCVW), 2667-2677. [PDF]

[5] **Fangrui Zhu**, Li Zhang, Yanwei Fu, Guodong Guo, Weidi Xie. Self-supervised Video Object Segmentation, arXiv 2006.12480. [PDF]

[6] Xuelin Qian, Wenxuan Wang, Li Zhang, **Fangrui Zhu**, Yanwei Fu, Tao Xiang, Yu-Gang Jiang, Xiangyang Xue. Long-Term Cloth-Changing Person Re-identification, 2020 IEEE Asian Conference on Computer Vision (ACCV). [PDF]

[7] Yu Xie, **Fangrui Zhu**, Yanwei Fu. Main-Secondary Network for Defect Segmentation of Textured Surface Images, 2020 IEEE Winter Conference on Applications of Computer Vision (WACV), 3531-3540. [PDF]

[8] Jianhui Chen, **Fangrui Zhu**, James J. Little. A Two-Point Method for PTZ Camera Calibration in Sports, 2018 IEEE Winter Conference on Applications of Computer Vision (WACV), 287–295. [PDF]

Experience	**Research Intern**	*Amazon Alexa AI, 2022.6 – 2022.9*

- Advised by Dr. Emre Barut.
- Topic: Mitigating Bias in Image Captioning.

Research Intern   *Baidu Research, 2021.7 – 2021.9*
- Research Intern in IDL group.
- Advised by Dr. Guodong Guo.
- Topic: Vision-language representation learning.

Research Intern   *Amazon AWS, 2020.6 – 2020.12*
- Research Intern in GluonCV group.
- Advised by Dr. Yi Zhu.
- Topic: Attention-based semantic segmentation.

Research Assistant   *Computer Vision Lab at Fudan University, 2018.9 – 2020.5*
- Advisor: Prof. Yanwei Fu.
- Cloth-inconsistent person re-identification (ReID) and occluded ReID.
- Worked closely with Dr. Weidi Xie from the VGG group on self-supervised video object segmentation.

Research Intern   *University of British Columbia, 2017.6 – 2017.9*
- Worked as a Mitacs Research Intern.
- Fully funded by China Scholarship Council (CSC) and Mitacs.
- Advisor: Prof. James Little and Dr. Jianhui Chen.
- Low-level computer vision based camera calibration for sports video understanding.

Selected Awards	*Second prize*, National Post-Graduate Mathematical Modeling Contest	2019
	'GouXiong Hui' data mining project funding (¥2,000)	2019
	Shanghai Outstanding Graduate Student Award (top 5%)	2018
	CSC and Mitacs Funding for undergraduate internship ($5,000 CAD)	2017
	First prize, Award on Tongji Excellent Student Scholarship (¥5,000)(top 5%)	2016
	First prize, Award on Tongji Excellent Student Scholarship (¥5,000)(top 5%)	2015
	Shanghai Technological Innovation Projects for Undergraduates (funded with ¥10,000)	2015

Teaching	- **Teaching Assistant** for DATA620007 Data Mining (2020 Spring), Fudan University.
Experience	- **Teaching Assistant** for DATA130020.01 Principle and Application of Database (2019 Spring), Fudan University.
	- **Teaching Assistant** for Deep Learning (2021 Spring), Northeastern University.
	- **Teaching Assistant** for Computer Vision (2022 Fall), Northeastern University.

Technical Skills	**Programming:** Python, C/C++, Matlab, R, JavaScript, HTML, CSS
	Tools: PyTorch, Opencv, LaTex, the scientific Python stack (numpy/scipy, scikit-learn, pandas, etc.), NodeJS, Bootstrap, Gurobi, Sketch, Bash, Git
	Platform: Linux, Mac OSX, IOS, Amazon Web Services (AWS)
	Language: IELTS:7.5; GRE: 323+4.0