# XIANGYU (BECKY) PENG

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Research area: Natural Language Generation, Reinforcement Learning,
Knowledge Graph, Game AI, Deep Learning

## EDUCATION

**Georgia Institute of Technology**, Atlanta, Georgia *Aug 2019 - present*
PhD in Machine Learning, GPA: 4.00/4.00, Advisor: Dr. Mark O. Riedl
Relevant Coursework: Reinforcement Learning; Stochastic Process; Math foundation of Machine Learning; Non-linear Optimization; Advanced Algorithm; Natural Language Processing; Theoretical Statistics

**Stanford University**, Stanford, California *Sep 2017 - Jun 2019*
M.S. in Structure Engineering, GPA: 4.00/4.30, Advisor: Dr. Jack Baker
Relevant Coursework: Deep Learning; Convolutional Neural Networks for Visual Recognition; Machine Learning; Data Mining and Analysis; Mining Massive Data Sets

**Shanghai Jiaotong University**, Shanghai, China *Sep 2013 - Jun 2017*
B.S. in Civil Engineering, GPA: 3.95/4.00, Advisor: Dr. Lulu Zhang
Relevant Coursework: Data structure; Programming Abstractions in C++

## WORK EXPERIENCE

**Research Scientist Intern** May 2022 - Nov 2022
*Salesforce Research* *Palo Alto, CA*

- Proposing a sample-specific ensemble of source models (SESoM) for **few-shot prompt-tuning**, which properly **transfers knowledge** from **trained soft prompts of source task** in large language models
- SESoM learns from the few-shot target samples to adaptively decide how much each source task should contribute given different target samples

**PhD Data Scientist Intern** May 2021 - Aug 2021
*Einstein team, Salesforce* *Boston, MA*

- Proposing an effective architecture, Extract-Boost-Finetune (XFBoost), for **improving automatic product description generation**
- Extracting product attributes from product images and boosting the probability of tokens with high similarity with extracted features
- Multimodal language model is fine-tuned with reinforcement learning to generate higher-quality descriptions

**Data Scientist Intern** Jun 2018 - Sep 2018
*SunPower Corp.* *San Jose, California*

- Exploring feature extraction of 1-second hot-spot cell test by conducting correlation analysis
- Finding effective data representations and evaluation metrics for training neural networks of **predicting hot-spot max temperature**

## PUBLICATIONS

**Model ensemble instead of prompt fusion: a sample-specific knowledge transfer method for few-shot prompt tuning**
Xiangyu Peng, Chen Xing, Prafulla Kumar Choubey, Chien-Sheng Wu, Caiming Xiong
*Proceedings of the 11th International Conference on Learning Representations (ICLR-23)*

**Inherently Explainable Reinforcement Learning in Natural Language**
Xiangyu Peng, Mark Riedl, Prithviraj Ammanabrolu
*Proceedings of the 36th Conference on Neural Information Processing Systems (NeurIPS-22)*

**Guiding Neural Story Generation with Reader Models**
Xiangyu Peng, Kaige Xie, Amal Alabdulkarim, Harshith Kayam, Samihan Dani and Mark Riedl
*Findings of the Association for Computational Linguistics: EMNLP 2022*

**Inferring the Reader: Guiding Automated Story Generation with Commonsense Reasoning**
Xiangyu Peng, Siyan Li, Sarah Wiegreffe and Mark Riedl
*Findings of the Association for Computational Linguistics: EMNLP 2022*

**NovGrid: A Flexible Grid World for Evaluating Agent Response to Novelty.**
Jonathan Balloch, Zhiyu Lin, Mustafa Hussain, Aarun Srinivas, Robert Wright, Xiangyu Peng, Julia Kim, and Mark Riedl.
*Under Review.*

**XFBoost: Improving Text Generation with Controllable Decoders**
Xiangyu Peng and Michael Sollami
*Under Review.*

**Detecting and Adapting to Novelty in Games**
Xiangyu Peng, Jonathan Balloch and Mark Riedl
*Creativity and Robotics at ICSR 2020||Reinforcement Learning in Games workshop at AAAI 2021*

**Automatic Story Generation: Challenges and Attempts**
Amal Alabdulkarim, Siyan Li and Xiangyu Peng
*Poster Presentation. The 3rd Workshop On Narrative Understanding in NAACL-21*

**Reducing Non-Normative Text Generation from Language Models**
Xiangyu Peng, Siyan Li, Spencer Frazier and Mark Riedl
*Oral. Proceedings of the 13th International Conference on Natural Language Generation (INLG-20)*

## SKILLS

**Technical**: Natural Language Processing, Reinforcement Learning, Machine Learning, Knowledge Graphs, Predictive Analytics, Computer Vison

**Programming**: C/C++, Python, R, SQL, MATLAB, Julia

**Tools and Framework**: pyTorch, Tensorflow, Git, scikit-learn, Numpy, Pandas, nltk, AWS

## AWARDS

**NeurIPS Scholar Award** *Oct 2022*

**NeurIPS Women in Machine Learning Workshop Travel Grant** *Dec 2020*

**Stewart Fellowship**, Georgia Institute of Technology *Aug 2019*

**Outstanding Graduates of Class 2017**, Shanghai Jiaotong University *Jun 2017*

**National Scholarship of China (Top 1%)**, Shanghai Jiaotong University *Jan 2017*

**Merit Student of Shanghai Jiao Tong University**, Shanghai Jiaotong University *Jun 2016*