# Yichen Li

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## Education

**Boston University** *September 2014 - September 2018*

Bachelor of Arts in Computer Science (Summa Cum Laude - Major No.1) *Major GPA: 3.98/4.00*

- No.1 graduating academic performance (Top 1%): College Prize for Excellence in Computer Science
- Courses: Data Structures. Algorithms, Systems, Optimization Methods, Geometric Algorithms, Software Engineering

Bachelor of Arts in Mathematics and Economics (Summa Cum Laude - Major No.2) *Major GPA: 4.00/4.00*

- Courses: Probability Theory, Linear Algebra, Applied Statistics, Data Science, Econometrics, Advanced Calculus

**Stanford University** *September 2019 - December 2020*

Masters of Science in Computer Science

- Artificial Intelligence and Machine Learning Track
- With a special focus on visual content creation including 3D and 2D computer graphics and computer vision

## Skills

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| **Programming and Software Engineering** | Python, Haskell, Java, Ruby, C#, C++, C, Objective-C, Swift, Android Studio |
| **Computer Graphics/Vision and AR/VR** | Unity3D, ARKit, ARCore, Tango, Geometry Processing, TensorFlow, PyTorch*, OpenCV* |
| **Data Analytics** | R, Matlab, STATA IC, Pandas, Seaborn, MongoDB, Bloomberg |

## Experience

**Boston University Department of Computer Science Shape Lab | IVC | AIR** *Boston, MA*

RESEARCH ASSISTANT and RESEARCHER *September 2017 - August 2019*

- Work with researchers and experts across various fields to formulate research project through defining novel applications of human machine interaction technologies, including AR/VR, to existing computer graphics problems
- Implement algorithms from existing literatures for geometry-based physical property inferences and propose new algorithms for stabilization optimization in mesh form ready to be 3d-printed
- Use ARKit and Google Tango to achieve AR-enabled 3D model auto-recognition and physical property visialization
- Create Augmented Reality user interface for iOS and Android platforms and conduct user experience experiments

**Spark! Lab x Global Joy** *Boston, MA*

SOFTWARE ENGINEER and CONSULTANT

- Develop user interface and major app functions, including Diet, News Feed, and Catalog, in Java/Android Studio collaborating with a team of five for the Health and Fitness start-up company Global Joy
- Hold weekly meetings with clients and design new development strategies to satisfy new customer needs in an agile development environment
- Work on a machine learning algorithm in a team of three to optimize the matching between health coach and customer

## Research Projects

**Continuous Domain Adaptation with Disentangled Prototypes**

Li, Yichen.*, Peng, Xingchao*., Hu, Ping *2020*

- Abstract: In this paper, we define the problem of online variational transfer learning as continuous domain adaptation (CDA) and make three major contributions addressing this new task. First, we collect and annotate a large scale cross-domain recognition dataset for continuous domain adaptation, named WeatherDA. Second, we propose a novel end-to-end deep learning approach, Domain Adaptation with Disentangled Prototype(DADP), which aims to transfer knowledge learned from labeled source domains to a sequence of target domains by aligning the prototypes of disentangled domain-invariant features. Third, we propose to utilize a light-weight memory to handle the problem of catastrophic forgetting. In submission.

**Learning Domain Adaptive Features with Unlabeled Domain Bridges**

Li, Yichen., Peng, Xingchao. *2019*

- Abstract: In this paper, we propose a novel approach to learn domain adaptive features between the largely-gapped source and targetdomains with unlabeled domain bridges. Firstly, we introduce the framework of Cycle-consistency Flow Generative Adversarial Networks (CFGAN) that utilizes domain bridges to perform image-to-image translation between two distantly distributed domains. Secondly, we propose the Prototypical Adversarial Domain Adaptation (PADA) model which utilizes unlabeled bridge domains to align feature distribution between source and target with large discrepancy. In submission.

**AR-Integrated 3D Geometry Analysis**

Li, Yichen., Whiting, Emily., Ochsendorf , John, *2018*

- This project visualize physical properties of 3D objects obtained through geometry processing using Augmented Reality. It constructs and visualize retrofit support designs that can be easily manufactured. (Under Review IEEE CGA)

**Open-vocabulary Phrase detection**

Plummer, Bryan., Shih, Kevin., Li, Yichen., Xu, Ke., Sclaroff, Stan., Lazebnik, Svetlana., Saenko, Kate. *2019*

- Abstract: We define a new task of open vocabulary phrase detection by incorporating zero and one shot detection. We adapt Faster-RCNN to perform element-wise product of the text embedding and the region features to input into the bounding box regression layer. Initialize the classification layer with CCA (canonical correlation analysis) help with performance. (Under review ACL)

## Honors and Leadership

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| 2018 | **College Prize for Excellence in Computer Science**, Boston University | *Boston, MA* |
| 2018 | **Summa Cum Laude**, Boston University | *Boston, MA* |
| 2018 | **Boston University Arts Initiative Research Award**, Boston University Arts Initiative | *Boston, MA* |
| 2018 | **UROP Summer Research Award**, Boston University UROP Program | *Boston, MA* |
| 2014 - 2018 | **Dean's List (All Semesters)**, Boston University | *Boston, MA* |
| 2016 - 2018 | **Commended Member**, LOCK Honorary Service Society at Boston University | *Boston, MA* |
| 2016 - 2018 | **Questrom Member**, Beta Gamma Sigma Honorary Society at Boston University | *Boston, MA* |

## Academic Projects

**Deep 3D Style-Aware Scene Generation (IP)** This project aims to achieve style-aware in-door scene completion in a iterative manner.

**Color and Material Augmented Photometric 3D Reconstruction (IP)** This project aims to improve the real-time photogrammetry precision of monochrome objects.

**Stock and Market Indices Prediction (IP)** This project aims to compare different methods for stock prediction, concentrating on the traditional statistical methods using multiple regression, classic economic models such as CAPM and stochastic processes, and the relatively newer machine learning methods including SVM and LSTM models.

## Other Skills and Activities

**Media Production and Other** Avid Media Composer, Adobe Creative Suite, Maya, 3Ds Max, Blender

**Language Skills** Bilingual proficiency in Mandarin Chinese, Conversational proficiency in French

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| 2016 - 2018 | **Volunteer**, Women In CS at Boston University | *Boston, MA* |
| 2016 | **VFX and Editor**, Master Thesis Film Projects Produced at Boston University | *Boston, MA* |
| 2015 - 2018 | **Volunteer**, Brighton Food Pantry | *Brighton, MA* |
| 2015 - 2018 | **Junior Analyst**, Boston University Finance Club | *Boston, MA* |
| 2014 - 2018 | **Volunteer**, Massachusetts Production Coalition | *Boston, MA* |