Engineering Portfolio

Problem Solver • Computer Scientist • Software Engineer

Jason Lin

Hustler, Go-Getter.
"- Good is never enough."

Los Angeles – Berkeley – Hong Kong – Cupertino – Philadelphia – Atlanta – Shenzhen – Mountain View

Georgia Tech Presenting 13 Papers at Premier Computer Vision Conference CVPR

Mon, 06/18/2018

A host of Georgia Tech students and faculty will travel to Salt Lake City, Utah, this week to attend the conference on Computer Vision and Pattern Recognition (CVPR) 2018.

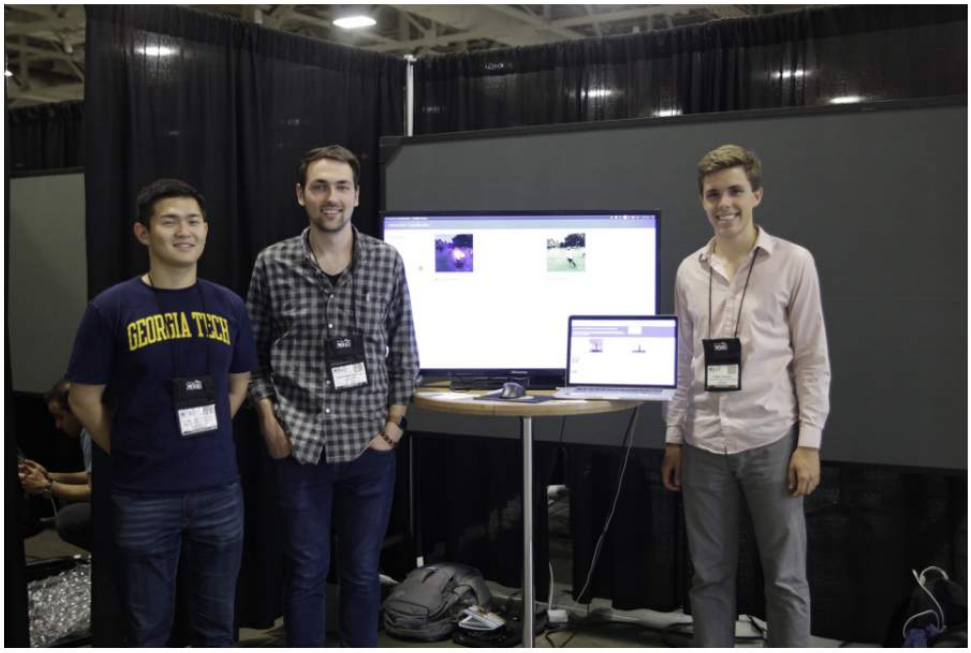
CVPR is the premier annual computer vision event and comprises a main conference and several co-located workshops and short courses. As in years past, faculty and students in the School of Interactive Computing (IC) and associated research units – the Center for Machine Learning, the GVU Center, and the Institute for Robotics and Intelligent Machines – will participate at all levels of the conference.

"CVPR is the top event in computer vision, and Georgia Tech has long had a substantial presence at the conference," said **Irfan Essa**, IC professor and director of the Center for Machine Learning. "This year, we have a number of faculty and student researchers participating in the technical program and we're excited to share our research with the rest of the community."

More than 10 faculty members and many more student researchers sharing 13 papers in oral, spotlight, poster, and demo presentations will represent Georgia Tech at the five-day event..

The conference will take place June 18-22, with the main technical program set to begin on June 19. Essa will provide a workshop talk at the conference.

Below are titles and abstracts of Georgia Tech's research being presented this week. The visualization below shows all of Georgia Tech's research, as well as dates, times, and locations for the associated talks.



Georgia Tech at CVPR 2018

Interactive Classification for Deep Learning Interpretation (Angel Cabrera, Fred Hohman, Jason Lin, Polo Chau)

ABSTRACT: We present an interactive system enabling users to manipulate images to explore

Related Links:

Georgia Tech at CVPR 2018

Contact:

David Mitchell
Communications Officer
david.mitchell@cc.gatech.edu

Science/Technology [/category/science-technology/]

Bias-busting app from USC team excels at Facebook Global Hackathon

Known as Cue, the app uses virtual reality to eliminate gender bias in the workplace

BY **Caitlin Dawson** [/author/caitlin-dawson/] JANUARY 18, 2018

Can you tell when the words you use are revealing an unconscious bias? This USC team created a VR tool to call you out on it. Jason Lin, Izzy Benavente, Cherrie Wang and Brandon Cen placed third at the global hacakathon. (Photo/Courtesy of Facebook Inc.)

A team of four USC computer science [https://www.cs.usc.edu/] students and alumni won third prize at the 2017 Facebook Global Hackathon by creating a virtual reality tool designed to stamp out gender bias in the workplace. During the 24-hour hackathon, Team Artemis developed Cue, an app that aims to unearth hidden prejudices by plunging users into a scenario-based, immersive VR environment.

“We wanted to tackle the issue of workplace sexism and discrimination by building a VR simulation tool that combats traditionally dry, uninteresting compliance training,” said team member and USC senior Cherrie Wang.

Other members were senior computer science student Brandon Cen and computer science graduates Izzy Benavente ’17 and Jason Lin ’17. The competition, which took place in late November at Facebook’s Menlo Park headquarters, featured 16 teams from seven countries.

Team Artemis earned a spot to compete in the finals after winning the Facebook Choice award at Stanford’s premier hackathon, TreeHacks, in early 2017, with an Alexa-based fitness and meal-tracking app. The app also won Best Voice-User Experience Using Amazon Alexa and Best Use of Data Visualization.

Investing in training

In recent years, many workplaces, especially tech companies, have invested resources into unconscious bias

Los Angeles 2024
10960 Wilshire Boulevard, Suite 1050
Los Angeles, CA 90024

Dear Anny, Donovan, Kai and Jason,

On behalf of LA 2024, I'd like to congratulate your team, official runners-up in the LA 2024 category of LA Hacks 2016!

At LA 2024, we're re-imagining a new Games for a new era. This means we want to showcase the creativity and ingenuity of the next generation of Californians – just as you all displayed in designing Olympic BPM.

LA 2024 is working to redefine how sports are presented at the Games, how information is shared with fans in the stadium and around the world, and how to better connect the Games with young people everywhere. Your project won because it demonstrated an understanding and a vision of how we can achieve these goals. I can't wait to see how the insights you provided on fan experience inform our team's work moving forward.

Your prize as runners-up are two courtside tickets to a 2016-17 regular season UCLA Men's basketball game at Pauley Pavilion. After the season schedule is released, my team will follow up with you to schedule a date. In the meantime, please submit the contact information of the two individuals who will be attending the game to **Luca Servodio** (lservodio@la24.org).

Again, thank you for your work. I encourage you to stay in touch with our bid as we work towards the final decision of the International Olympic Committee, which will take place in Lima, Peru in September of 2017. We are up against formidable competition in Budapest, Paris, and Rome. But we have something they don't – you!

You can always stay connected and follow us on social media, and don't hesitate to reach out to our team at community@la24.org.

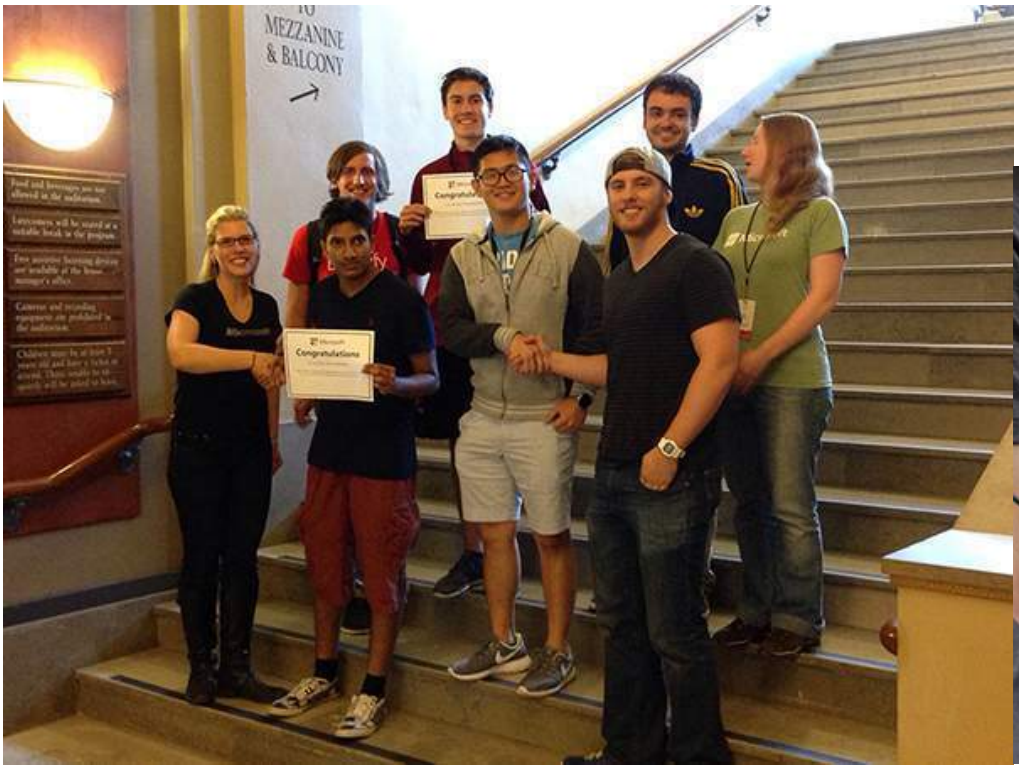
Follow the Sun,

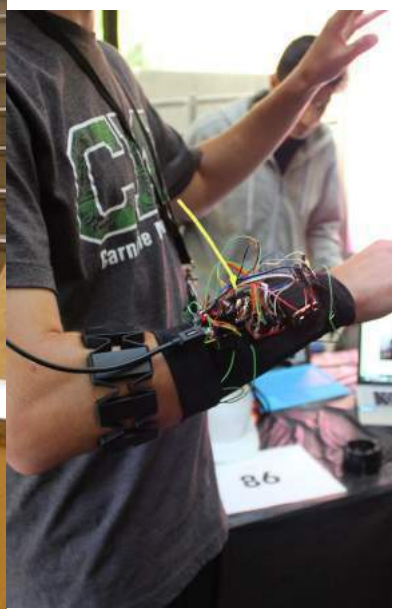
Casey Wasserman
Chairman, LA 2024

Hackathons & Side projects

JLin.xyz

Piazza Hackathon – **Palo Alto, CA**

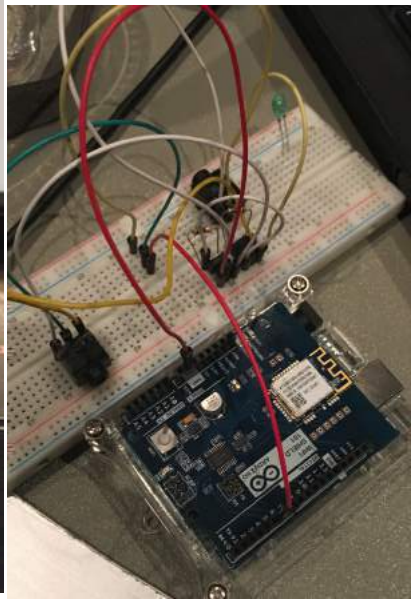




Microsoft Prize at MHacks 6 – **University of Michigan, MI**

Other placements/awards:

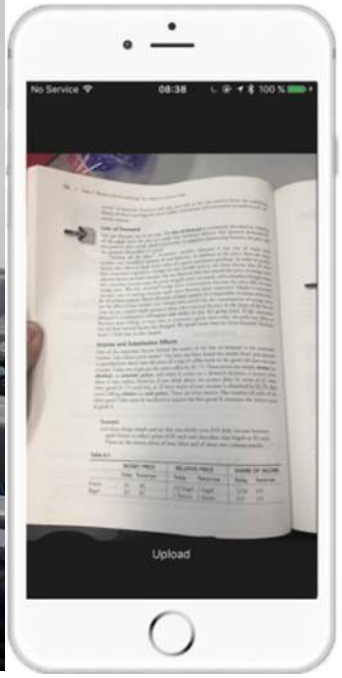
- Top 30 at PennApps – UPenn, PA
- EverQuote API prize at Dartmouth College – Hanover, NH



3rd Place at IDEA Hacks – **UCLA, CA**

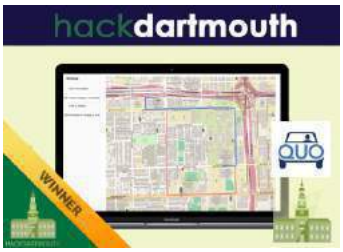
LA Olympic 2028 Runner-up, Top 10 Overall at LA Hacks – **UCLA, CA**

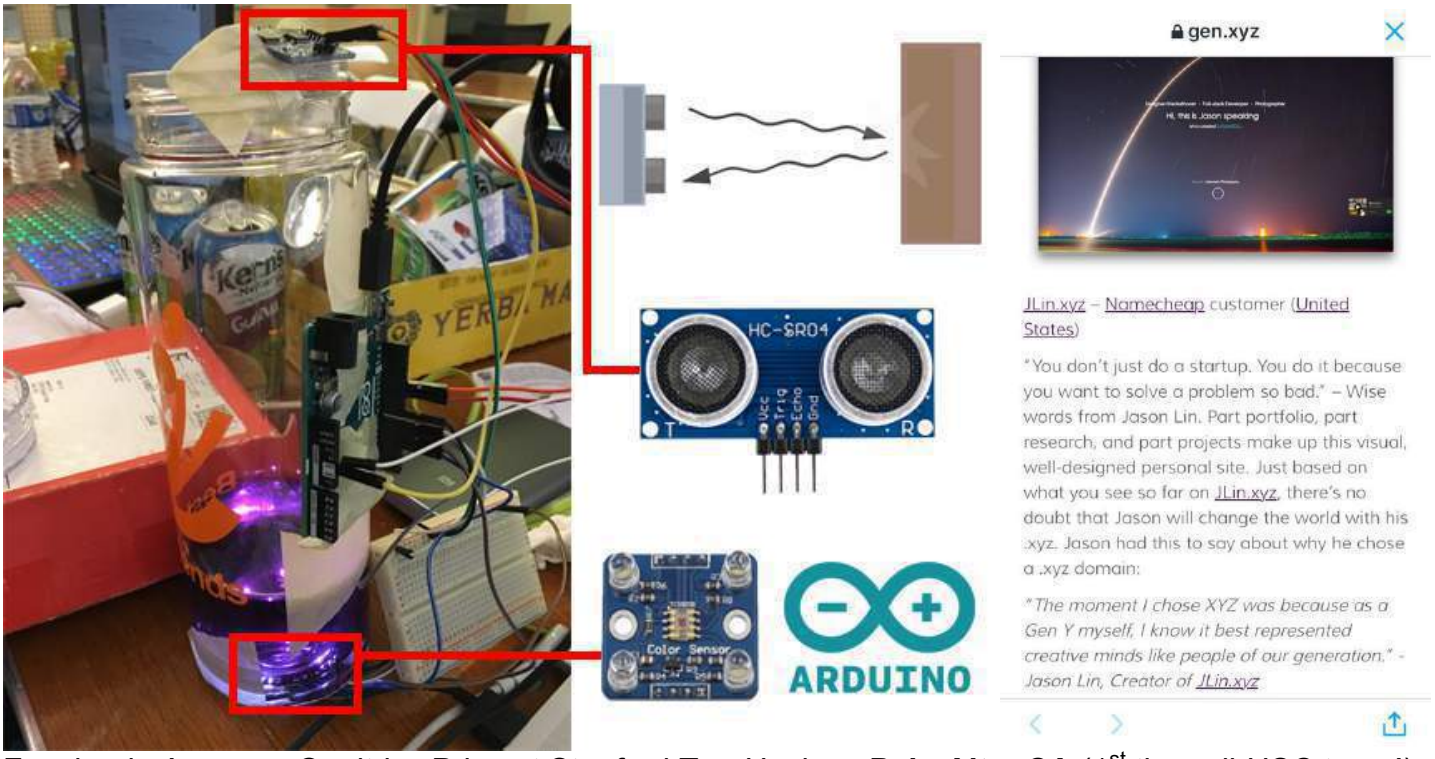
Facebook, Amazon, Qualtrics Prizes – **Stanford, CA**



Hack The North 2015-2016 – **University of Waterloo, Ontario (Canada)**

Top 6 at AngelHack 2016 – **Hong Kong**

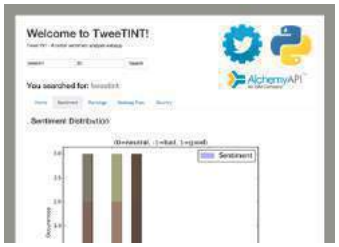


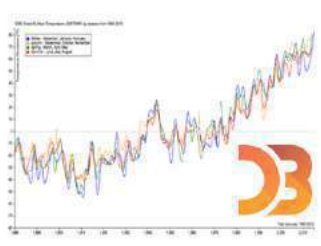


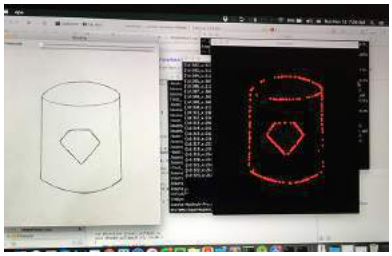
Facebook, Amazon, Qualtrics Prize at Stanford TreeHacks – **Palo Alto, CA** (1st time all-USC team!)

3rd Place at Facebook Global Hackathon Finals – **Menlo Park, CA**

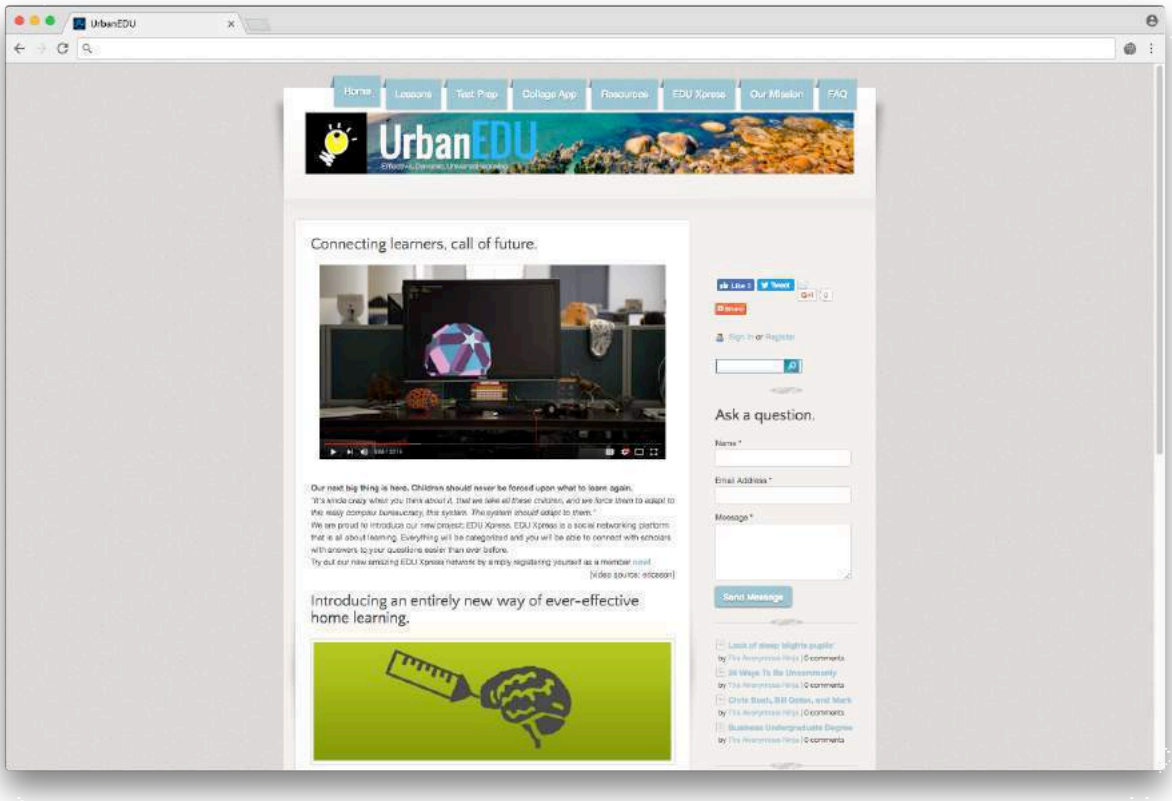
Solo Projects







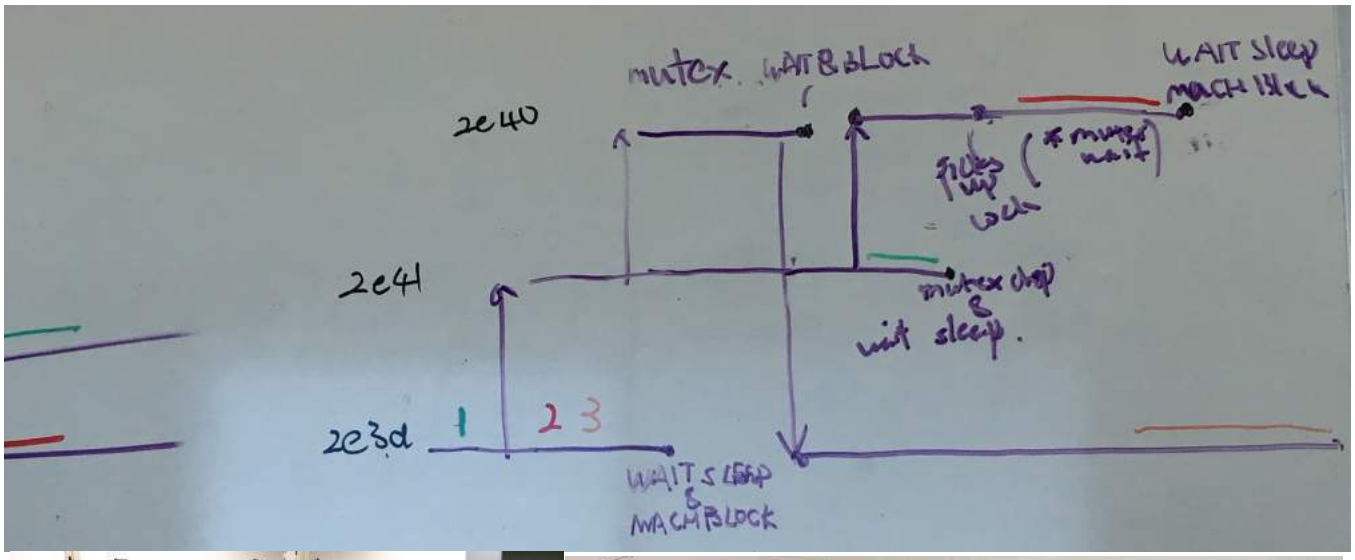
Engineering & Entrepreneurship

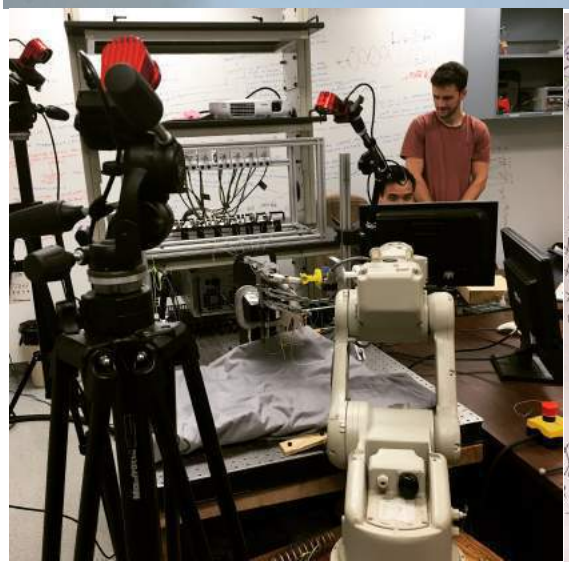


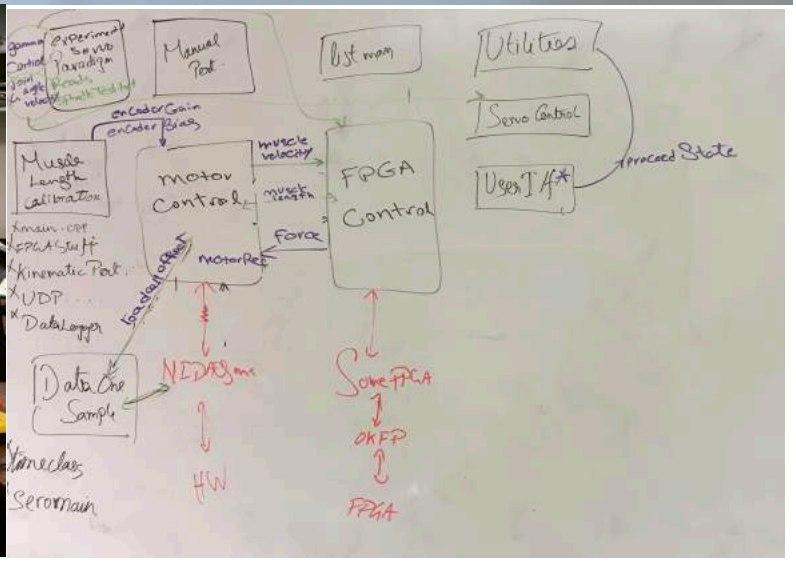
Bootstrapped photo studio for custom designed and manufactured apparel brand


4m ago
The architects that designed the pointy things
Southern California

Research

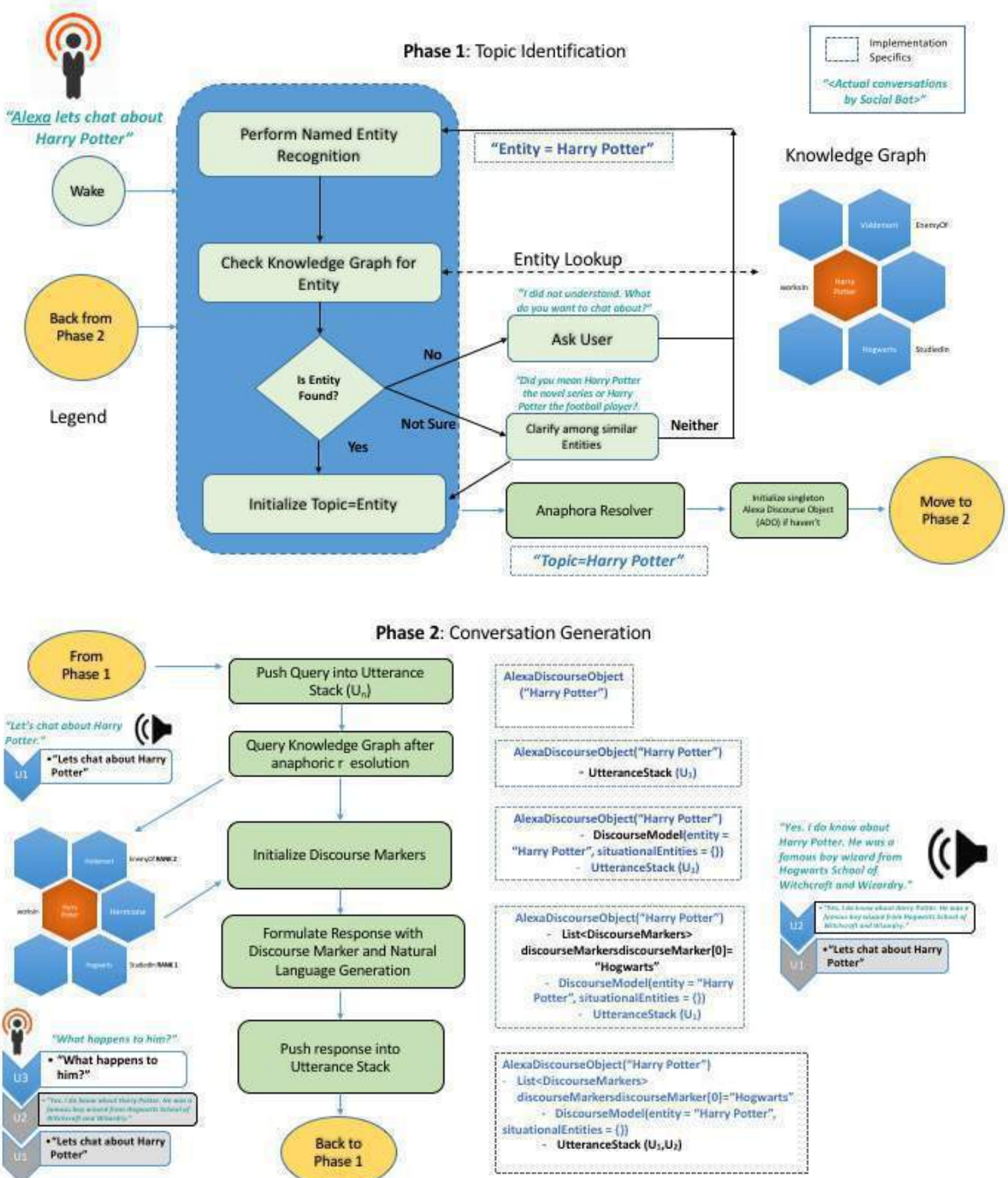

mutex
WAIT sleep
MACH block
2e40
2e41
2e3d
1
2 3
WAIT sleep
&
MACH BLOCK




Manual Test
Utilities
Servo Control
FPGA Control
motor Control
Muscle Length calibration
Kinematic Test
UDP
DataLogger
Force
NIDAQmx
HW
FPGA
OKFP

amazon alexa prize

The Socialbot Challenge – Pitch Deck



amazon alexa prize

The Socialbot Challenge – Scientific Approach

Describe, in detail, your scientific approach as well as a statement of work including milestones, resources, and other relevant information (1,000 words or less).

One of the primary components of engaging discourse is context. The two forms of context that we consider here are linguistic context [1] and cultural context [2]. These can be loosely represented in an artificially intelligent system using natural language processing techniques and a knowledge base comprised of an ontology and inference system. This ontology must adapt to the discourse; new information must be incorporated for future reference.

We address linguistic context at different levels of granularity. We distinguish “utterances” and “discussions” from the whole conversation. Here, an “utterance” is an uninterrupted contribution from a single entity during a two-party conversation, which may be comprised of one or more sentences. A “discussion” is a sequence of utterances between two parties which maintain a coherent dialogue on a single topic.

Our system recognizes its turn to speak using dialogue markers, which signal the boundaries of an utterance. Because our system relies on a black box ASR output, we must use the text output for understanding the turn-at-talk signal. Our bot receives input and expects a conversational boundary, such as a question, or a long pause. The dialogue markers are modeled after real world conversation transcripts [3]. We also train the model on utterance boundaries from movie dialogues, which explicitly describe the turn-taking in a conversation [4]. We will use these initial boundaries on users and test our bot’s success in identifying the markers, then update our model based on user feedback.

Given the user utterance, our system then discerns the conversation topic. We perform named entity recognition (NER) on each of the sentences of the input using conditional random fields (CRFs). The CRF models are pre-trained then applied to the input to find mentions of entities. Preliminarily, we will use Stanford CoreNLP’s implementation for NER [5]. We are open to improving upon and extending the algorithm used for our purposes.

We consider two methods of coreference resolution: a centering algorithm [6] and a multi-pass sieve coreference resolution system [7], also found in CoreNLP. We apply coreference resolution techniques at both the utterance- and the discussion-level scale. After finding the named entities and resolving their coreferences, checking them against our ontology and disambiguating them, we have the topic of discussion. We check for this topic in our ontology. If it exists, we continue. If there are two or more likely entities in the ontology, our bot asks the user to clarify. If there are no recognizable entities, our bot asks the user to try initiating a different topic for discussion.

After the conversation topic is initialized, our bot expects the next user input to be relevant as to preserve coherence. If the user segues to a distinct but relevant topic, our bot decides how likely this segue is to be a new conversation. Topics are considered related if they are one degree of separation away in the ontology. If the new topic is in that set, it is relevant to the old topic, and our bot continues as normal. Otherwise, it re-initializes its discussion-level metadata to resolve entity ambiguities as the conversation continues.

On its conversational turn, our bot generates an utterance in response to the user’s most recent input, factoring in the discussion-level metadata. The first time our bot encounters a topic, it chooses an appropriate RDF comment from that entity’s properties in our ontology. These comments are expected to be fully-structured english. If the topic does not change, the bot will generate a response from the

ECE 8803 PGM: Detecting Regions of Interest

Team members: Jason Lin (CS 8803), Weihua Zhu (ECE 8803), Hakki Mert Torun (ECE 8803), Jingjing Pan (ECE 8803)
Instructor: Prof. Faramarz Fekri

Motivation & Goals

For our project, our goal is to quickly find out the regions of interests (ROIs)[1] that are likely to contain a single coherent topic or object. ROI detection lies in the core of many topics interests including image segmentation, object detection, localization and web user interfaces. Among various usage of ROI detection algorithms, we will focus on two of the most significant applications of such methods namely, objectness measure [2] and saliency detection [3, 4].

Proposed Work

Our plan is to investigate promising probabilistic graphical model (PGM) based techniques in literature used for object boundry and saliency detection. We will then perform a comparative study of different popular techniques as following:
1. Identify several performance evaluation criteria to be used in a fair empirical as well as theoretical comparison for the selected algorithms.
2. Identify a total of *four* algorithms (*two* for objectness detection and *two* for saliency detection) and analyze their performance in terms of asymptotic convergence and order of complexity.
3. Implement each algorithm for empirical comparison based on criteria given at Step 1.

An ambitious followup would be to investigate graph-based ROI proposals and their applications in state-of-the-art two-stage deep learning object detectors (R-CNN [5]), where the first stage samples bounding windows of non-background objects with a selective search algorithm or Region Proposal Network (RPN) [5, 6]. We'd like to compare the performance between end-to-end convolutional RPN vs. graphical techniques using saliency and objectness.

Plan of Activities

With a group of four, our plan is to assign two member to objectness detection and two members to saliency detection. In order to increase the outcome of the project both in terms of quality and our gained knowledge, each member will also assist one other team member who focuses on a different algorithm. In a approximate manner, the following tasks will be completed:

1. Each member to focus on analysis and implementation of one of the four algorithms.
2. We plan to run our experiments on PASCAL VOC[7], Flickr8k[8] and ImageNet[9] datasets.

Network Virtualization: Distributed Computing and a more secure Internet

Jason Lin
Enterprise Network Design
University of Southern California
jasonjli@usc.edu

Abstract

The Internet is arguably one of our civilization's greatest inventions. From its roots as DARPA's military funded research project ARPANET, the modern day Internet is built upon sophisticated and robust protocols that support billions of users at the same time. Scalability is enhanced by its rigid but complex infrastructure, however it was not originally built with security in mind.

Running in its backbone is the TCP/IP communications protocol, devised to ensure reliability when transferring duplex data. Through decades of popularization, the Internet has evolved into a form bounded by a complex set of diverse stakeholders. Due to its wide-use and multi-provider nature, adopting a new architecture or groundbreaking modification requires a near impossible consensus from conflicting stakeholders. Yet modern Internet was developed at a time that preceded the inventions of mobile computing and smart connected devices, which together have contributed immensely to the population of connected devices we have today – so much that the depletion of IPv4 addresses resulted in the introduction of the new standard IPv6.

For most enterprises, the very complexity of the network makes it hard to introduce changes from the perspectives of management, configuration, and control. In this paper, we explore network virtualization's existing applications and its potential for piloting a new network architecture rested upon proven concepts of distributed computing and virtualization technologies. In doing so, we justify an outlook on the future of network – a portable, dynamic and customizable heterogeneous Internet that is responsive to unpredicted contingencies.

1. INTRODUCTION

Rising to its popularity in both academia and industry in recent years, network virtualization explores the frontier of network architecture research. As a means of abstraction of resources, its original role served a similar purpose as virtual machines are to operating systems. A formal definition for the term virtualization is generally stated as the transparent abstraction of physical computing resources that exposes a platform supporting multiple logical views of their properties [1]. Among its many benefits, network virtualization emerges as a foundation for next generation networks, providing improved manageability and mobility for network administrators and users. Built upon a plethora of existing virtualization and cloud technologies, network virtualization serves as the completing piece that will fully interconnect all other virtualized appliances to create a complete ecosystem of a virtualized computing environment [2]. Existing concepts of virtualization applied to operating systems, storage systems, servers and data centers are thus highly transferrable to the development of virtual networks.

Data Mining Specialization

About This Specialization

The Data Mining Specialization teaches data mining techniques for both structured data which conform to a clearly defined schema, and unstructured data which exist in the form of natural language text. Specific course topics include pattern discovery, clustering, text retrieval, text mining and analytics, and data visualization. The Capstone project task is to solve real-world data mining challenges using a restaurant review data set from Yelp.

Courses 2 - 5 of this Specialization form the lecture component of courses in the online Master of Computer Science Degree in Data Science. You can apply to the degree program either before or after you begin the Specialization.

Created by: ILLINOIS

ILLINOIS

VERIFIED CERTIFICATE

06/10/2015

Jason Jiachen Lin

has successfully completed

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Jiawei Han
Abel Bliss Professor
Department of Computer Science

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ChengXiang Zhai
Professor and Willett Faculty Scholar
Department of Computer Science
University of Illinois at Urbana-Champaign

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