jakebeck.com
github.com/jacooba

Jacob Beck

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EDUCATION

University of Oxford
Ph.D. in Computer Science

Recipient of the 2020 Oxford-Google DeepMind Doctoral Scholarship

Brown University
M.S. in Computer Science
Class of 2020
4.0 GPA

B.S. in Computer Science
Class of 2018
3.83 GPA

Graduate Seminars

			Grade
CSCI 2951X:	Reintegrating AI		**A**
CSCI 2951F:	Reinforcement Learning	**Python**	**A**
CSCI 2950K:	Deep Learning	**TensorFlow**	**A**
CSCI 2951K:	Topics in Grounded Language for Robotics	**Java**	**A**

Select Courses

CSCI 1570:	Design and Analysis of Algorithms	**Matlab**	**A**
ECON 1090:	Game Theory		**A**
APMA 1710:	Information Theory		**A**
APMA 1740:	Recent Applications of Prob. and Statistics		**A**

RESEARCH & EXPERIENCE

Microsoft Research
Research Predoc

- Wrote a paper published at ICLR 2020 as first author (tinyurl.com/ICLR-AMRL)
- Researched long-term memory in deep **RL** with Katja Hofmann
- Showed the sensitivity of modern memory approaches to stochasticity
- Implemented DNC and improved over it by 9%

Spring-Summer 2019

Michael Littman's Car Lab
Researcher

- Published a paper in the International Conference on Social Robotics 2019, using Stackelberg game trees (tinyurl.com/Bully-ICSR)
- Lead research on learning from human demonstration with human feedback (research: tinyurl.com/Brown-Masters-Theses, publicity: tinyurl.com/PubAV)
- Created DQN to plan actions for an autonomous car in a **Unity** simulator

2017-2020

DeepScale
R&D Intern

- Created state-of-the art methods for lane instance segmentation using **PyTorch**
- Developed heuristic, cluster-based, and end-to-end approaches
- Made use of bilinear upsampling and shuffle net encoder to reduce FLOPS

Fall 2018

Lyft
Software Engineer Intern

- Worked on behavioral planning at the Level5 autonomous vehicle lab
- Simulated human agents with learnable parameters at a stop intersection in **C++**
- Coded an **MDP** to find a policy for AV at a stop intersection, given the human model
- Created a Python MDP framework, including a special-case solver

Summer 2018

Brown University
Deep Learning TA

- Designed, taught, graded material for the graduate deep learning course CSCI 2470
- Gave a lecture on implementing sequence-to-sequence translation with attention
- Designed a lab on recurrent neural nets including vanilla RNN's, GRU's, and LSTM's

Fall 2017

Adobe
Data Science Intern

- Improved forecasting for the Data Science Digital Marketing research team
- Set up the models to re-train online as new data comes in (concurrently)
- Improved team's prediction accuracy by 9%, with only 121 samples per model

Summer 2017

Food with Friends
Co-founder & Developer

- Co-founded, designed, and developed Food with Friends in **Swift** on iOS app store
- Implemented multithreading, Google maps API, and user management

Summer 2016

Pied Piper Robotics LLC
Engineering Intern

- Designed, 3D printed, programmed, and wired a robot head and neck, using **SketchUp** and **ROS**

Summer 2015

PROJECTS

jakebeck.com/portfolio

Neural Mesh
Lead

Designed, implemented, and benchmarked a biologically inspired RNN (project report: arxiv.org/abs/1807.11121)

Spring 2018

Drone
Alone

Built and programmed a quadcopter to do position and velocity hold with PID controllers and optical flow, using **ROS**

Fall 2017

GAN Image Completion
4-person team

Built a GAN to complete corrupted images in **TensorFlow,** for a deep learning grad seminar

Fall 2016

RL with Emotive Feedback
2-person team

Coded an agent in Minecraft using reinforcement learning and **OpenCV,** for a robotics grad seminar

Spring 2016