

Xue Bin (Jason) Peng
Year 2, PhD in Computer Science
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EDUCATION/AWARDS

- **PhD in Computer Science**, *University of California, Berkeley* 2017–Present
 - NSERC Postgraduate Scholarship
 - Berkeley Fellowship For Graduate Study
- **MSc in Computer Science**, *University of British Columbia* 2015 –2017
 - Governor-General’s Gold Medal
 - top of master’s class across all faculties (~2000 students)
 - NSERC Canada Graduate Scholarship Master’s Award
 - Theodore E Arnold Fellowship
 - CS Merit Award
- **Computer Science Honours**, *University of British Columbia* 2010 – 2015
 - Governor-General’s Silver Medal in Science
 - top of undergrad class in faculty of science (~2000 students)
 - Grade average: 95.6 %
 - Norman A M MacKenzie Scholarship
 - President’s Entrance Scholarship
 - Trek Excellence Scholarship
 - Greer Family Scholarship
 - Charles and Jane Banks Scholarship
 - Marie Kendall Memorial Scholarship in Science
 - Computer Science Scholarship
- **School of Interactive Arts and Technology**, *Simon Fraser University* 2009 – 2010
 - Gordon M. Shrum Scholarship

PUBLICATIONS

Refereed Journals/Conferences

- **Xue Bin Peng**, Angjoo Kanazawa, Jitendra Malik, Pieter Abbeel, and Sergey Levine. SFV: Reinforcement Learning of Physical Skills from Videos. *ACM Transactions on Graphics (Proc. SIGGRAPH Asia 2018)* 37, 6 (2018).
- **Xue Bin Peng**, Pieter Abbeel, Sergey Levine, and Michiel van de Panne. DeepMimic: Example-Guided Deep Reinforcement Learning of Physics-Based Character Skills. *ACM Transactions on Graphics (Proc. SIGGRAPH 2018)* 37, 4 (2018).
- **Xue Bin Peng**, Marcin Andrychowicz, Wojciech Zaremba, and Pieter Abbeel. Sim-to-Real Transfer of Robotic Control with Dynamics Randomization. *IEEE International Conference on Robotics and Automation (ICRA)* (2018).
- **Xue Bin Peng**, Glen Berseth, KangKang Yin, and Michiel van de Panne. DeepLoco: Dynamic Locomotion Skills Using Hierarchical Deep Reinforcement Learning. *ACM Transactions on Graphics (Proc. SIGGRAPH 2017)* 36, 4 (2017).
- **Xue Bin Peng**, and Michiel van de Panne. Learning Locomotion Skills Using DeepRL: Does the Choice of Action Space Matter? *Proc. ACM SIGGRAPH / Eurographics Symposium on Computer Animation* (2017). Best student paper.

- **Xue Bin Peng**, Glen Berseth, and Michiel van de Panne. Terrain-adaptive locomotion skills using deep reinforcement learning. *ACM Transactions on Graphics (Proc. SIGGRAPH 2016)* 35, 4 (2016).
- **Xue Bin Peng**, Glen Berseth, and Michiel van de Panne. Dynamic Terrain Traversal Skills Using Reinforcement Learning. *ACM Transactions on Graphics (Proc. SIGGRAPH 2015)* 34, 4 (2015).

Non-Refereed

- **Xue Bin Peng**, Angjoo Kanazawa, Sam Toyer, Pieter Abbeel, and Sergey Levine. Variational Discriminator Bottleneck: Improving Imitation Learning, Inverse RL, and GANs by Constraining Information Flow. *arXiv preprint arXiv:1810.00821* (2018).

Posters and Abstracts

- **Xue Bin Peng**, Glen Berseth, and Michiel van de Panne. Learning Locomotion Skills Using DeepRL: Does the Choice of Action Space Matter? *NIPS Deep Reinforcement Learning Workshop*, (2016).
- **Xue Bin Peng**, Glen Berseth, and Michiel van de Panne. Terrain-adaptive locomotion skills using deep reinforcement learning. *NIPS Deep Learning Symposium*, (2016).
- **Xue Bin Peng**, Glen Berseth, and Michiel van de Panne. Dynamic Locomotion Across Variable Terrains Using Deep Reinforcement Learning. *Dynamic Walking*, (2016).
- **Xue Bin Peng**, Glen Berseth, and Michiel van de Panne. Dynamic Locomotion Skills for Obstacle Sequences Using Reinforcement Learning. *Dynamic Walking*, (2015).
- **Xue Bin Peng**, Glen Berseth, and Michiel van de Panne. Learning Dynamic Locomotion Skills for Terrains with Obstacles. *Reinforcement Learning and Decision Making*, (2015).

WORK EXPERIENCE

Member of Technical Staff (Intern), OpenAI May – Aug, 2017

- Explored methods for transferring control policies from simulation to a physical robot

Research Assistant, University of British Columbia 2015 - 2017

- Developed methods to train motion control policies for physics-based character simulation

Graduate Teaching Assistant, University of British Columbia Jan – April 2017

- Hosted office hours
- Wrote code for assignments
- Graded assignments and exams

Research Intern, Adobe Research May – Aug, 2015

- Explored methods for physically-plausible motion control of simulated characters

Lab Associate (Intern), Disney Research Pittsburgh Jan – May, 2015

- Developed models of human gameplay strategies through imitation learning
- Instrumented game to collect player data

Undergraduate Teaching Assistant, University of British Columbia 2011 - 2014

- Directed labs and hosted office hours
- Wrote code for assignments
- Graded assignments and exams

Intern Software Developer, Microsoft Studios

May – Nov, 2013

- Developed real-time analytic approximation of area lights with different BRDFs
- Implemented clustered forward lighting
- Implemented environment map volumes and parallax correction

Co-op Rendering Engineer, Capcom Vancouver

Jan – Aug, 2012

- Designed and created various rendering features through HLSL and C++
- Designed a system for physically inspired image based lighting, utilizing real-time generation of dynamic environment maps
- Implemented subsurface scattering for skin, distance field text and decal rendering, vertex animation, deferred lights, HDR cubemap support for Maya, and a variety of post-effects

TECHNICAL SKILLS

Programming Languages :	Software :
<ul style="list-style-type: none"> • Most fluent: C++, Python, Matlab, • C#, HLSL/GLSL, Java, Haskell, Prolog 	<ul style="list-style-type: none"> • Microsoft Visual Studio • Photoshop • Git • Perforce

PROJECTS

Deep Terrain RL (2016):

- Applied deep reinforcement learning to train policies that enable simulated characters to agilely traverse across irregular terrain
- Developed mixture model policy representation that enable specialization of sub-policies
- Implemented locomotion controllers
- Integrated Caffe deep learning framework
- Build parallel training framework to speed up training of neural networks

GPU Fluid Simulation (2014) :

- Developed a real-time smoke simulation using an Eulerian discretization
- Implemented vorticity confinement and GPU solid voxelization of meshes
- Added a real-time volumetric scattering with an isotropic model for smoke rendering

Soft Body Simulation (2014) :

- Implemented Fast Lattice Shape Matching for mesh deformation
- Created a CPU voxelizer to generate space deformation cages for meshes

Personal Rendering Projects (2012) :

- GPU 3D fractal raymarcher with distance estimators
- Implemented Preetham/Hosek physics-based sky model
- Created Crepuscular rays as a post effect

Fractal Flakes (2011) :

- Create an interactive program that generates various 2D fractals