

# Xue Bin (Jason) Peng

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[xbpeng.github.io](https://xbpeng.github.io)

## EDUCATION/AWARDS

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- **PhD in Computer Science**, *University of California, Berkeley* 2017–2021
  - NSERC Postgraduate Scholarship
  - Berkeley Fellowship For Graduate Study
  - Sevin Rosen Funds Award for Innovation
- **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

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### Refereed Journals/Conferences

- **Xue Bin Peng**, Ze Ma, Pieter Abbeel, Sergey Levine, and Angjoo Kanazawa. AMP: Adversarial Motion Priors for Stylized Physics-Based Character Control. *ACM Transactions on Graphics (Proc. SIGGRAPH 2021)* 40, 4 (2021).
- Zhongyu Li, Xuxin Cheng, **Xue Bin Peng**, Pieter Abbeel, Sergey Levine, Glen Berseth, and Koushil Sreenath. Reinforcement Learning for Robust Parameterized Locomotion Control of Bipedal Robots. *IEEE International Conference on Robotics and Automation (ICRA)*, (2021).
- **Xue Bin Peng**, Erwin Coumans, Tingnan Zhang, Tsang-Wei Lee, Jie Tan, Sergey Levine. Learning Agile Robotic Locomotion Skills by Imitating Animals. *Robotics: Science and Systems (RSS)*, (2020). **Best paper**.
- Anirudh Goyal, Shagun Sodhani, Jonathan Binas, **Xue Bin Peng**, Sergey Levine, and Yoshua Benjio. Reinforcement Learning with Competitive Ensembles of Information-Constrained Primitives. *International Conference on Learning Representations (ICLR)*, (2020).
- Farzad Abdohosseini, Hung Yu Ling, Zhaoming Xie, **Xue Bin Peng**, and Michiel van de Panne. On Learning Symmetric Locomotion. *Motion, Interaction and Games (MIG)*, (2019).

- **Xue Bin Peng**, Michael Chang, Grace Zhang, Pieter Abbeel, Sergey Levine. MCP: Learning Composable Hierarchical Control with Multiplicative Compositional Policies. *Neural Information Processing Systems (NeurIPS)*, (2019).
- **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. *International Conference on Learning Representations (ICLR)*, (2019).
- **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

- Laura Smith, J. Chase Kew, **Xue Bin Peng**, Sehoon Ha, Jie Tan, Sergey Levine. Legged Robots that Keep on Learning: Fine-Tuning Locomotion Policies in the Real World. *arXiv preprint arXiv: 2110.05457* (2021).
- Aviral Kumar, **Xue Bin Peng**, and Sergey Levine. Reward-Conditioned Policies. *arXiv preprint arXiv: 1912.13465* (2019).
- **Xue Bin Peng**, Aviral Kumar, Grace Zhang, and Sergey Levine. Advantage-Weighted Regression: Simple and Scalable Off-Policy Reinforcement Learning. *arXiv preprint arXiv: 1910.00177* (2019).

#### 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

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**Research Scientist Intern, NVIDIA** May, 2021 – Present

- Developed imitation learning framework for physics-based character animation.

**Research Intern, Google Brain** June, 2019 – May, 2020

- Developed framework for learning locomotion skills from demonstrations for quadruped robots.

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

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

**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

**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

## TEACHING EXPERIENCE

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**Graduate Student Instructor, University of California, Berkeley**

- CS 188: Introduction to Artificial Intelligence Jan. – May, 2019

**Graduate Teaching Assistant, University of British Columbia**

- CPSC 426: Computer Animation Jan. – May, 2017

**Undergraduate Teaching Assistant, University of British Columbia**

- CPSC 314: Computer Graphics Sep. – Dec., 2014

- CPSC 110: Computation, Programs, and Programming

Sep. – Dec. 2011

## **Service**

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### **Reviewer**

2016 - Present

- Reviewer for paper submissions to SIGGRAPH, SIGGRAPH ASIA, TOG, Eurographics, SCA, NeurIPS, ICML, ICLR, RSS, ICRA, IROS, CoRL, RA-L

### **Competition Organizer**

2019

- Organizer for NeurIPS 2019: Learn to Move – Walk Around competition