Xue Bin (Jason) Peng

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Research Scientist, NVIDIA
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EDUCATION

- **PhD in Computer Science**, *University of California, Berkeley* 2017–2021
  - Advisor: Sergey Levine and Pieter Abbeel
- **MSc in Computer Science**, *University of British Columbia* 2015 –2017
  - Advisor: Michiel van de Panne
  - Governor-General's Gold Medal
    - top of master's class across all faculties (~2000 students)
- **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)
- **School of Interactive Arts and Technology**, *Simon Fraser University* 2009 – 2010

Employment

Assistant Professor, *Simon Fraser University* 2022 – Present

Research Scientist, *NVIDIA* 2022 – Present

Research Scientist Intern, *NVIDIA* May, 2021 – June, 2022

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

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

Research Intern, *Adobe Research* May – Aug., 2015

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

Intern Software Developer, *Microsoft Studios* May – Nov., 2013

Co-op Rendering Engineer, *Capcom Vancouver* Jan. – Aug., 2012

AWARDS

- **Early Career Researcher Award,** *CHCCS/SCDHM Graphics Interface* 2024
- **Outstanding Doctoral Dissertation Award**, *ACM SIGGRAPH* 2022
- **Sevin Rosen Funds Award for Innovation**, *University of California, Berkeley* 2021
- **Berkeley Fellowship For Graduate Study**, *University of California, Berkeley* 2017-2020
- **NSERC Postgraduate Scholarship**, *University of California, Berkeley* 2017-2020

- **Governor-General's Gold Medal in Science**, *University of British Columbia* 2017
  - top of master's class across all faculties (~2000 students)
- **NSERC Canada Graduate Scholarship Master's Award**, *University of British Columbia* 2017

- **Theodore E Arnold Fellowship**, *University of British Columbia* 2015-2016
- **CS Merit Award**, *University of British Columbia* 2015-2017

- **Governor-General's Silver Medal in Science**, *University of British Columbia* 2015
  - top of undergraduate class in faculty of science (~2000 students)
- **Greer Family Scholarship**, *University of British Columbia* 2013
- **Marie Kendall Memorial Scholarship in Science**, *University of British Columbia* 2013
- **Charles and Jane Banks Scholarship**, *University of British Columbia* 2011
- **Computer Science Scholarship**, *University of British Columbia* 2011
- **Trek Excellence Scholarship**, *University of British Columbia* 2011-2015
- **Norman A M MacKenzie Scholarship**, *University of British Columbia* 2010
- **President's Entrance Scholarship**, *University of British Columbia* 2010

- **Gordon M. Shrum Scholarship**, *Simon Fraser University* 2009 – 2010

PUBLICATIONS

Refereed Journals/Conferences

- Yuxuan Mu, Hung Yu Ling, Yi Shi, Ismael Baira Ojeda, Pengcheng Xi, Chang Shu, Fabio Zinno, and **Xue Bin Peng**. StableMotion: Training Motion Cleanup Models with Unpaired Corrupted Data. *In ACM SIGGRAPH Asia 2025 Conference Proceedings (SIGGRAPH Asia '25)* (2025).

- Ziyu Zhang, Sergey Bashkirov, Dun Yang, Yi Shi, Michael Taylor, and **Xue Bin Peng**. ADD: Physics-Based Motion Imitation with Adversarial Differential Discriminators. *In ACM SIGGRAPH Asia 2025 Conference Proceedings (SIGGRAPH Asia '25)* (2025).

- Chen Tessler, Yifeng Jiang, Erwin Coumans, Zhengyi Luo, **Xue Bin Peng**, and Gal Chechik. MaskedManipulator: Versatile Whole-Body Control for Loco-Manipulation. *In ACM SIGGRAPH Asia 2025 Conference Proceedings (SIGGRAPH Asia '25)* (2025).

- Yanjie Ze, Zixuan Chen, João Pedro Araújo, Zi-ang Cao, **Xue Bin Peng**, Jiajun Wu, C. Karen Liu. TWIST: Teleoperated Whole-Body Imitation System. *Proceedings of The 9th Conference on Robot Learning (CORL)* (2025).

- Zixuan Chen, Xialin He, Yen-Jen Wang, Qiayuan Liao, Yanjie Ze, Zhongyu Li, S. Shankar Sastry, Jiajun Wu, Koushil Sreenath, Saurabh Gupta, **Xue Bin Peng**. Learning Smooth Humanoid Locomotion through Lipschitz-Constrained Policies. *International Conference on Intelligent Robots and Systems (IROS)* (2025).

- Michael Xu, Yi Shi, KangKang Yin, and **Xue Bin Peng**. PARC: Physics-based Augmentation with Reinforcement Learning for Character Controllers. *In ACM SIGGRAPH 2025 Conference Proceedings (SIGGRAPH '25)* (2025).

- Guy Tevet, Sigal Raab, Setareh Cohan, Daniele Reda, Zhengyi Luo, **Xue Bin Peng**, Amit Bermano, Michiel van de Panne. CLoSD: Closing the Loop between Simulation and Diffusion

for multi-task character control. *In International Conference on Learning Representations (ICLR)* (2025). **Spotlight.**

- Zhongyu Li, **Xue Bin Peng**, Pieter Abbeel, Sergey Levine, Glen Berseth, and Koushil Sreenath. Reinforcement Learning for Versatile, Dynamic, and Robust Bipedal Locomotion Control. *The International Journal of Robotics Research (IJRR 2025)*.

- Xiaoyu Huang, Qiayuan Liao, Yiming Ni, Zhongyu Li, Laura Smith, Sergey Levine, **Xue Bin Peng**, and Koushil Sreenath. HiLMa-Res: A General Hierarchical Framework via Residual RL for Combining Quadrupedal Locomotion and Manipulation. *International Conference on Intelligent Robots and Systems (IROS 2024)*.

- Hongwei Yi, Justus Thies, Michael J Black, **Xue Bin Peng**, and Davis Rempe. Generating Human Interaction Motions in Scenes with Text Control. *European Conference on Computer Vision (ECCV)* (2024).

- Zhongyu Li, **Xue Bin Peng**, Pieter Abbeel, Sergey Levine, Glen Berseth, and Koushil Sreenath. Reinforcement Learning for Versatile, Dynamic, and Robust Bipedal Locomotion Control. *The International Journal of Robotics Research* (2024).

- Chen Tessler, Yunrong Guo, Ofir Nabati, Gal Chechik, and **Xue Bin Peng**. MaskedMimic: Unified Physics-Based Character Control Through Masked Motion Inpainting. *ACM Transactions on Graphics (Proc. SIGGRAPH Asia 2024)* (2024).

- Yi Shi, Jingbo Wang, Xuekun Jiang, Bingkun Lin, Bo Dai, and **Xue Bin Peng**. Interactive Character Control With Auto-Regressive Motion Diffusion Models. *ACM Transactions on Graphics (Proc. SIGGRAPH 2024)* (2024).

- Jordan Juravsky, Yunrong Guo, Sanja Fidler, and **Xue Bin Peng**. SuperPADL: Scaling Language-Directed Physics-Based Control with Progressive Supervised Distillation. *In ACM SIGGRAPH 2024 Conference Proceedings (SIGGRAPH '24)* (2024).

- Setareh Cohan, Guy Tevet, Daniele Reda, **Xue Bin Peng**, and Michiel van de Panne. Flexible Motion In-Betweening with Diffusion Models. *In ACM SIGGRAPH 2023 Conference Proceedings (SIGGRAPH '24)* (2024).

- Jonah Philion, **Xue Bin Peng**, and Sanja Fidler. Trajeglish: Traffic Modeling as Next-Token Prediction. *In International Conference on Learning Representations (ICLR)* (2024).

- Mathis Petrovich, Or Litany, Umar Iqbal, Michael J Black, Gul Varol, **Xue Bin Peng**, and Davis Rempe. Multi-track Timeline Control for Text-Driven 3d Human Motion Generation. *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition* (2024).

- Haotian Zhang, Ye Yuan, Viktor Makoviychuk, Yunrong Guo, Sanja Fidler, **Xue Bin Peng**, and Kayvon Fatahalian. Learning Physically Simulated Tennis Skills from Broadcast Videos. *ACM Transactions on Graphics (Proc. SIGGRAPH 2023)* (2023). **Best Paper Honourable Mention**.

- Mohamed Hassan, Yunrong Guo, Tingwu Wang, Michael Black, Sanja Fidler, and **Xue Bin Peng**. Synthesizing Physical Character-Scene Interactions. *In ACM SIGGRAPH 2023 Conference Proceedings* (2023).

- Chen Tessler, Yoni Kasten, Yunrong Guo, Shie Mannor, Gal Chechik, and **Xue Bin Peng**. CALM: Conditional Adversarial Latent Models for Directable Virtual Characters. *In ACM SIGGRAPH 2023 Conference Proceedings (SIGGRAPH '23)* (2023).
- Alejandro Escontrela, Ademi Adeniji, Wilson Yan, Ajay Jain, **Xue Bin Peng**, Ken Goldberg, Youngwoon Lee, Danijar Hafner, Pieter Abbeel. Video Prediction Models as Rewards for Reinforcement Learning. *Neural Information Processing Systems (NeurIPS),* (2023).
- Xiaoyu Huang, Zhongyu Li, Yanzhen Xiang, Yiming Ni, Yufeng Chi, Yunhao Li, Lizhi Yang, **Xue Bin Peng**, and Koushil Sreenath. Creating a Dynamic Quadrupedal Robotic Goalkeeper with Reinforcement Learning. *2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)* (2023).
- Laura M. Smith, J. Chase Kew, Tianyu Li, Linda Luu, **Xue Bin Peng**, Sehoon Ha, Jie Tan, and Sergey Levine. Learning and Adapting Agile Locomotion Skills by Transferring Experience. *In Robotics: Science and Systems XIX* (2023).
- Kevin Zakka, Philipp Wu, Laura Smith, Nimrod Gileadi, Taylor Howell, **Xue Bin Peng**, Sumeet Singh, Yuval Tassa, Pete Florence, Andy Zeng, Pieter Abbeel. RoboPianist: Dexterous Piano Playing with Deep Reinforcement Learning. *Conference on Robot Learning (CoRL)* (2023).
- Davis Rempe, Zhengyi Luo, **Xue Bin Peng**, Ye Yuan, Kris Kitani, Karsten Kreis, Sanja Fidler, and Or Litany. Trace and Pace: Controllable Pedestrian Animation via Guided Trajectory Diffusion. *In Conference on Computer Vision and Pattern Recognition (CVPR)* (2023).
- Zhongyu Li, **Xue Bin Peng**, Pieter Abbeel, Sergey Levine, Glen Berseth, and Koushil Sreenath. Robust and Versatile Bipedal Jumping Control through Reinforcement Learning. *In Robotics: Science and Systems XIX* (2023).
- Gilbert Feng, Hongbo Zhang, Zhongyu Li, **Xue Bin Peng**, Bhuvan Basireddy, Linzhu Yue, Zhitao Song, Lizhi Yang, Yunhui Liu, Koushil Sreenath, and Sergey Levine. GenLoco: Generalized Locomotion Controllers for Quadrupedal Robots. *In Proceedings of The 6th Conference on Robot Learning (Proceedings of Machine Learning Research)* (2023)
- Michael Laskin, Hao Liu, **Xue Bin Peng**, Denis Yarats, Aravind Rajeswaran, and Pieter Abbeel. Unsupervised Reinforcement Learning with Contrastive Intrinsic Control. *In Advances in Neural Information Processing Systems* (2022).
- Jordan Juravsky, Yunrong Guo, Sanja Fidler, and **Xue Bin Peng**. PADL: Language-Directed Physics-Based Character Control. *In SIGGRAPH Asia 2022 Conference Papers* (2022).
- Alejandro Escontrela, **Xue Bin Peng**, Wenhao Yu, Tingnan Zhang, Atil Iscen, Ken Goldberg, and Pieter Abbeel. Adversarial Motion Priors Make Good Substitutes for Complex Reward Functions. *International Conference on Intelligent Robots and Systems* (2022).
- Yandong Ji, Zhongyu Li, Yinan Sun, **Xue Bin Peng**, Sergey Levine, Glen Berseth, and Koushil Sreenath. Hierarchical Reinforcement Learning for Precise Soccer Shooting Skills using a Quadrupedal Robot. *2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)* (2022).

- **Xue Bin Peng**, Yunrong Guo, Lina Halper, Sergey Levine, Sanja Fidler. ASE: Large-Scale Reusable Adversarial Skill Embeddings for Physically Simulated Characters. *ACM Transactions on Graphics (Proc. SIGGRAPH 2022)* 41, 4 (2022).
- 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. *IEEE International Conference on Robotics and Automation (ICRA),* (2022).
- Seungmoon Song, Łukasz Kidziński, **Xue Bin Peng**, Carmichael Ong, Jennifer Hicks, Sergey Levine, Christopher G. Atkeson, Scott L. Delp. Deep Reinforcement Learning for Modeling Human Locomotion Control in Neuromechanical Simulation. *Journal of NeuroEngineering and Rehabilitation,* (2021).
- Eric Mitchell, Rafael Rafailov, **Xue Bin Peng**, Sergey Levine, Chelsea Finn. Offline Meta-Reinforcement Learning with Advantage Weighting. *International Conference on Machine Learning (ICML),* (2021).
- **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 Abdolhosseini, 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

- 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).

PATENTS

- **Scene-Aware Synthetic Human Motion Generation Using Neural Networks**
  YI Hongwei, Davis Rempe, Xue Bin Peng, Sanja Fidler US Patent Application: 18415496 (2025)

- **Generative Human Motion Simulation with Temporal Control**
  Mathis Petrovich, Xue Bin Peng, Davis Rempe, Umar Iqbal, Or Litany, Sanja Fidler, Sanja Fidler
  US Patent Application: 18404758 (2025)

- **Virtual Agent Trajectory Prediction and Traffic Modeling for Machine Simulation Systems and Applications**
  Jonah Philion, Jeevan Devaranjan, Xue Bin Peng, Sanja Fidler
  US Patent Application: 17949991 (2024)

- **Object Animation Using Neural Networks**
  Jordan Juravsky, Xue Bin Peng, Sanja Fidler
  US Patent Application: 17748739 (2024)

- **Physics-Based Image Generation Using One or More Neural Networks**
  Tingwu Wang, Yunrong Guo, Xie Cheng, Xue Bin Peng, Sanja Fidler
  US Patent Application: 17842481 (2023)

Invited Talks

Beyond Motion Tracking for Motor Skill Learning August 11, 2025
SIGGRAPH Technical Workshop: Generalizing Natural Behavior: Retargeting Human or Animal Motion to Robotic Forms.
Vancouver, British Columbia, Canada

Beyond Motion Tracking for Motor Skill Learning July 31, 2025
Amazon
Emeryville, California, USA

Beyond Motion Tracking for Motor Skill Learning June 11, 2025
Workshop on Humanoid Agents at CVPR
Nashville, Tennessee, USA

Beyond Motion Tracking for Motor Skill Learning June 2, 2025
Stanford University
Stanford, California, USA

Acquiring Motor Skills Through Motion Imitation and Reinforcement Learning June 3, 2024
Graphics Interfaces 2024
Halifax, Canada

Acquiring Motor Skills Through Motion Imitation and Reinforcement Learning May 3, 2024
University of Alberta
Alberta, Canada

Acquiring Motor Skills Through Motion Imitation and Reinforcement Learning October 19, 2023
Fourier Intelligence Co., Ltd
Shanghai, China

Learning to Move from Videos August 23, 2023
Electronic Arts Inc.
Burnaby, British Columbia, Canada

Adversarial Imitation Learning for Motor Control August 7, 2022
SFU Visual Computing Workshop
Vancouver, British Columbia, Canada

Imitation Learning for Data-Driven Physics-Based Character Control April 22, 2021
Adobe Inc.
San Jose, California, USA

Data-Driven Physics-Based Character Animation with Imitation Learning March 24, 2021
Peking University
Beijing, China

Learning Agile Robotic Locomotion Skills by Imitating Animals November 2, 2020
New York University
New York, New York, USA

Data-Driven Physics-Based Character Animation with Imitation Learning February 21, 2020
Electronic Arts Inc.
Redwood City, California, USA

Data-Driven Physics-Based Character Animation with Imitation Learning July 23, 2019
Bellairs Workshop
Folkestone, St. James, Barbados

Towards a Virtual Stuntman July 23, 2018
Boston Dynamics
Waltham, Massachusetts, USA

Developing Locomotion Skills with Reinforcement Learning March 14, 2017
Google LLC
Mountain View, California, USA

TEACHING

Instructor, *Simon Fraser University* 2022 – Present

- CMPT 361: Intro to Visual Computing
- CMPT 729: Reinforcement Learning

SERVICE

Conference/Workshop Organizer

- Local Chair for Symposium on Computer Animation 2025
- Organizer for NeurIPS 2019: Learn to Move – Walk Around competition

Paper Committee

- SIGGRAPH 2025 Technical Papers Committee
- SIGGRAPH Asia 2022 Technical Papers Committee

Reviewer

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