

# Sayna Ebrahimi

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## Education

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- **UC Berkeley** Berkeley, CA  
*PhD Candidate; Mechanical Engineering* *2013 – 2019*  
Advised by Professors David Steigmann, Trevor Darrell
- **UC Berkeley** Berkeley, CA  
*Master of Science in Computer Science;* *2017 – 2019*  
Advised by Professor Trevor Darrell
- **University of South Alabama** Mobile, AL  
*Master of Science in Mechanical Engineering* *2011 – 2013*  
Advised by Professor Anh-Vu Phan

## Research Interest

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Deep Learning, Computer Vision, Lifelong Learning, Meta Learning

## Research/Industry Experience

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- **Berkeley Artificial Intelligence Research (BAIR)** Berkeley, CA  
*Graduate Student Researcher* *2016 - present*  
Developing new lifelong learning algorithms, predictive uncertainty algorithms, gradient-free optimization techniques
- **NVIDIA** Holmdel, NJ  
*Research Intern* *Summer 2017*  
Designing new algorithms to predict uncertainty for end-to-end driving models  
Mentor: Urs Muller, Larry Jackle
- **Computational Mechanics Lab** Berkeley, CA  
*Graduate Student Researcher* *2013 - present*  
Developing new parallel algorithms for Peridynamics, Meta-learning algorithms for solving ODEs in analyzing materials behavior

## Current Research Publications

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- **Sayna Ebrahimi**, Anna Rohrbach, Trevor Darrell, Gradient-free policy architecture search and adaptation, *Conference on Robotic Learning (CoRL) 2017*
- **Sayna Ebrahimi**, Daniel Geng, Trevor Darrell, Surprisingly simple deep confidence prediction, *Under ECCV 2018 Review*
- Samaneh Azadi, Deepak Pathak, **Sayna Ebrahimi**, Trevor Darrell, Compositional GANs, *Under NIPS 2018 Review*
- **Sayna Ebrahimi**, Anna Rohrbach, Trevor Darrell, Gradient-free policy search , *WiCV workshop at CVPR 2018, Oral*

## Previous Research Publications/Conference Talks

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- **S. Ebrahimi** D. Steigmann, and K. Komvopoulos, Peridynamics analysis of the nanoscale friction and wear properties of amorphous carbon thin films, *Journal of Mechanics of Materials and Structures*, 10.5 (2015), 559-572.
- **S. Ebrahimi**, A. -V. Phan, Dynamic crack growth modeling technique based upon the SGBEM in the Laplace domain, *Acta Mechanica*, (2013), 1-13
- **S. Ebrahimi**, and Phan, A.-V. Dynamic analysis of cracks using the SGBEM for elastodynamics in the laplace-space frequency domain *Engineering Analysis with Boundary Elements*, 37, 11 (2013), 1378-1391
- **S. Ebrahimi**, M. Taylor, “Parallel Algorithms for CPU and GPU Peridynamic Computation“, International Mechanical Engineering Congress & Exposition, November , 2016, Phoenix, Arizona
- **S. Ebrahimi**, M. Taylor, D. Steigmann, “A Mechanical Sub-Element Formulation of Plasticity in Ordinary State-Based Peridynamics“, International Mechanical Engineering Congress & Exposition, November , 2016, Phoenix, Arizona

- M. Taylor, **S. Ebrahimi**, D. Steigmann, “A Peridynamic Model for Thin Shells via Descent from Three-Dimensional State-Based and Bond-Based Peridynamics“, International Mechanical Engineering Congress & Exposition, November , 2016, Phoenix, Arizona
- **S. Ebrahimi**, D. Steigmann, K. Komvopoulos “Peridynamics Analysis of Elastic-Plastic Contacts“, 13th U.S. National Congress on Computational Mechanics, July 26-30, 2015, San Diego, California
- **S. Ebrahimi**, D. Steigmann, K. Komvopoulos “Wear process analysis of thin-films using Peridynamics“, 17th U.S. National Congress on Theoretical and Applied Mechanics, June 15-20, 2014, East Lansing, Michigan
- **S. Ebrahimi** A. -V Phan, “Laplace SGBEM Modeling of Dynamic Crack Propagation through a Cluster of Inclusions“ 17th U.S. National Congress on Theoretical and Applied Mechanics, June 15-20, 2014, East Lansing, Michigan
- **S. Ebrahimi** A.-V. Phan, “Dynamic crack growth analysis in the Laplace-space frequency domain by the symmetric-Galerkin boundary element method.“ Proceedings of the IMECE-ASME 2013 International Mechanical Engineering Congress and Exposition, July 22-25, 2013, Raleigh, North Carolina
- **S. Ebrahimi**, A. -V. Phan, “Boundary Element Dynamic Fracture Analysis in the Frequency Domain: Fourier- or Laplace-Space?“ 2012 IMECE-ASME 2012-89850, Houston, Texas.
- **S. Ebrahimi**, A. -V. Phan, Peridynamic Analysis of Crack-Inclusion Interaction in Unidirectional Fiber-Reinforced Composites, 2012 ASME-ECTC, Georgia Institute of Technology, Georgia

## Honors and Awards

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| • Graduate Division Fellowship, UC Berkeley   | 2016-2017 |
| • Homer Powley Grant, (selected in a research proposal competition in body armor design | 2015      |
| • Otto and Herta F. Kornei Endowment Fellowship   | 2014      |
| • Alabama NASA-EPSCoR Fellowship - Round 7  | 2012-2013 |

## Programming Skills

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**Languages:** Python, Bash scripting, C/C++

**Deep learning frameworks:** PyTorch, TensorFlow, Torch

## Teaching Experience

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| • <b>UC Berkeley</b>                              | Berkeley, CA |
| • <i>Mechanical Behavior of Materials (ME108)</i> | 2013-2016    |
| • <b>UC Berkeley</b>                              | Berkeley, CA |
| • <i>Data Structures (CS61B)</i>                  | Fall 2016    |