

# Sahil VERMA

Paul G. Allen School of Computer Science and Engineering  
University of Washington, Seattle, WA, USA

[Website](#)  
[Google Scholar](#)

## RESEARCH INTERESTS

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I am interested in exploring ways to make Machine Learning trustworthy, specifically explainability and fairness.

## EDUCATION

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| SEPT 2019 - Present   | PhD in Computer Science<br><b>University of Washington, Seattle</b><br>Advisors: <a href="#">Prof. Chirag Shah</a> and <a href="#">Prof. John Dickerson</a> |
| JULY 2015 - JULY 2019 | BTech in Electrical Engineering<br><b>Indian Institute of Technology Kanpur (IIT Kanpur)</b><br>Advisor: <a href="#">Prof. Subhajit Roy</a>                 |

## HONORS AND AWARDS

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|------|---|----------------------------|
| 2020 | Best Paper Award and Nvidia Titan RTX GPU             | ML-RSA Workshop at NeurIPS |
| 2019 | Allen School Fellowship                               | Paul G. Allen School, UW   |
| 2018 | Student Travel Award of \$1500                        | ACM SIGPLAN                |
| 2017 | Student Travel Award of \$1800                        | Google India               |
| 2015 | All India Rank 663                                    | IITJEE Advanced Exam       |
| 2015 | KVPY Fellow with All India Rank 205                   | IISc Bangalore             |
| 2015 | Top 1% in National Standard Examinations in Chemistry | HBCSE, Mumbai              |
| 2015 | Top 1% in National Standard Examinations in Biology   | HBCSE, Mumbai              |

## PUBLICATIONS

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[Amortized Generation of Sequential Counterfactual Explanations for Black-box Models](#)  
SAHIL VERMA, KEEGAN HINES, JOHN P DICKERSON

[Counterfactual Explanations for Machine Learning: A Review](#)  
SAHIL VERMA, JOHN DICKERSON, KEEGAN HINES, *ML-RSA Workshop, NeurIPS 2020*  
**Best Paper Award**

[Removing biased data to improve fairness and accuracy](#)  
SAHIL VERMA, MICHAEL ERNST, RENE JUST

[Facets of Fairness in Search and Recommendations](#)  
SAHIL VERMA, RUOYUAN GAO, CHIRAG SHAH, *Algorithmic Bias Workshop at ECIR 2020*

[Fairness Definitions Explained](#)  
SAHIL VERMA AND JULIA RUBIN, *FairWare Workshop at ICSE 2017*

[ShapeFlow: Dynamic Shape Interpreter for TensorFlow](#)

SAHIL VERMA AND ZHENDONG SU

[Debug-Localize-Repair: A Symbiotic Construction for Heap Manipulations](#)

SAHIL VERMA AND SUBHAJIT ROY, *FMSD Journal* 2021

[Synergistic Debug-Repair for Heap Manipulations](#)

SAHIL VERMA AND SUBHAJIT ROY, *ESEC/FSE* 2017

## PATENTS

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Amortized Generation of Sequential Counterfactual Explanations for Black-box Models

SAHIL VERMA, KEEGAN HINES, JOHN P DICKERSON

*Patent Pending*

## WORK EXPERIENCE

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|-----------------------|--|
| JUNE 2020 - Present   | Research Fellow at Arthur AI<br>Real time industry deployable counterfactual explanation algorithm |
| JUNE 2019 – SEPT 2019 | Research Intern at ETH Zurich<br>Detecting tensor shape incompatibility bugs in TensorFlow models  |
| MAY 2018 – AUG 2018   | Research Intern at CSAIL, MIT<br>Floating bit allocation in programs                               |
| MAY 2017 – AUG 2017   | Research Intern at NUS<br>Converting CSP programs into C programs                                  |

## PROFESSIONAL RESPONSIBILITIES

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- Reviewing: AAAI 2022, EAAMO 2021, AFCR Workshop at NeurIPS 2021, XAIF Workshop at ICAIF 2021, Data Mining and Knowledge Journal 2021.
- Student Volunteer at ESEC/FSE 2017.

## COURSEWORK

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|                            |                     |  |
|----------------------------|---------------------|--|
| Computer Vision            | Deep Learning       | Foundation of Fairness in Machine Learning |
| Machine Learning           | Convex Optimization | Reinforcement Learning                     |
| Probability and Statistics | Linear Algebra      | Reasoning for Software                     |

## TEACHING EXPERIENCE

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**Teaching Assistant:** Machine Learning (CSEP546), Introduction to Machine Learning (CSE 416)