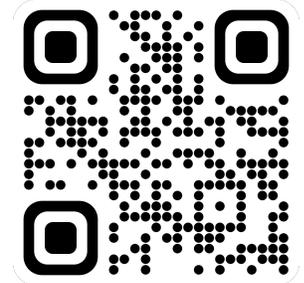


Zeel B Patel

Date of Birth: 04 Aug 1996 (27 years old)
Nationality: Indian
Website: <https://patel-zeel.github.io/>

Email: patel_zeel@iitgn.ac.in
GitHub: <https://github.com/patel-zeel>



EDUCATION

- **PhD in Computer Science**, Jan 2020 - Present
Research Topic: Probabilistic Machine Learning for Environment Modeling and Sensor Placement.
Advisor: [Nipun Batra](#)
CGPA: 9.65/10.0
IIT Gandhinagar, Gujarat, India
- **M.Tech (Specialization: Smart Manufacturing)**, Aug 2017 - May 2019
CGPA: 9.17/10.0
IIITDM Kancheepuram, Chennai, India

PUBLICATIONS (GOOGLE SCHOLAR PROFILE)

Selected Peer-reviewed articles

1. **Zeel B Patel**, Palak Purohit, Harsh Patel, Shivam Sahni, Nipun Batra
Accurate and Scalable Gaussian Processes for Fine-grained Air Quality Inference
AAAI 2022 (CORE A* - 15% acceptance rate)
GitHub repo: <https://github.com/patel-zeel/AAAI22>
2. Sachin Chauhan, **Zeel B Patel**, Sayan Ranu, Rijurekha Sen, Nipun Batra
Fine-Grained Spatio-Temporal Particulate Matter Dataset From Delhi For ML based Modeling
In NeurIPS 2023 Datasets and Benchmarks (CORE A* - 32.7% acceptance rate)
3. Rishiraj Adhikary, **Zeel B Patel**, Tanmay Srivasatava, Nipun Batra, Mayank Singh, Udit Bhatia, Sarath Guttikunda
Vartalaap: What Drives #AirQuality Discussions: Politics, Pollution or Pseudo-science?
CSCW Journal 2021 (CORE A)
GitHub repo: <https://github.com/rishi-a/Vartalaap>
4. Karm Patel, Rishiraj Adhikary, **Zeel B Patel**, Nipun Batra, Sarath Guttikunda
Samachar: News Media on Air Pollution in India
COMPASS 2022
GitHub repo: <https://github.com/karm-patel/Samachar-News-media-on-air-pollution>

Symposium, Workshop papers and Posters

1. Aditi Agarwal, Suraj Jaiswal, Madhav Kanda, Dhruv Patel, Rishabh Mondal, Vannsh Jani, **Zeel B Patel**, Nipun Batra, Sarath Guttikunda
Towards Scalable Identification of Brick Kilns from Satellite Imagery with Active Learning
NeurIPS Workshop on Adaptive Experimental Design and Active Learning in the Real World 2023 (CORE A*)
2. **Zeel B Patel**, Nipun Batra, Kevin Murphy
Uncertainty Disentanglement with Non-stationary Heteroscedastic Gaussian Processes for Active Learning
NeurIPS Workshop on Gaussian Processes, Spatiotemporal Modeling, and Decision-making Systems 2022 (CORE A*)
3. Aadesh Desai, Eshan Gujarathi, Saagar Parikh, Sachin Yadav, **Zeel B Patel**, Nipun Batra
Deep Gaussian Processes for Air Quality Inference
Young Researchers' Symposium, CODS-COMAD 2023
4. Aadesh Desai, Gautam Vashishtha, **Zeel B Patel**, Nipun Batra
Challenges in Gaussian Processes for Non Intrusive Load Monitoring
NeurIPS Workshop on Gaussian Processes, Spatiotemporal Modeling, and Decision-making Systems 2022 (CORE A*)
5. **Zeel B Patel**, Nipun Batra
Towards Active Air Quality Station Deployment
SubSetML Workshop, ICML 2021 (CORE A*)

6. **Zeel B Patel***, S Deepak Narayanan*, Apoorv Agnihotri, Nipun Batra
Poster: A toolkit for spatial interpolation and sensor placement
ACM SenSys 2020 (CORE A*)
GitHub repo: <https://github.com/sustainability-lab/polire>
7. **Zeel B Patel**, Nipun Batra
Active Learning: A Visual Tour
3rd Workshop on Visualization for AI Explainability, IEEE VIS 2020 (CORE A)
Weblink: <https://patel-zeel.github.io/active-learning-visualization/>

BOOKS CONTRIBUTIONS

- **Probabilistic Machine Learning: Advanced Topics:** <https://probml.github.io/pml-book/book2.html>
I co-authored Section 34.7 (Active learning) with Dr. Kevin Murphy
- **Code-First-ML:** <https://code-first-ml.github.io/>
This book is a joint effort with my advisor and Prof. [Ashish Tendulkar](#) to pragmatically explain ML concepts with interactive codes and visualizations. Currently, we are refactoring it as a mirror copy of probabilistic machine learning book by Dr. Kevin Murphy.

INTERSHIPS

- **Google Summer of Code** *Jun 2022 - Sep 2022*
Organization: TensorFlow
Mentor: [Kevin P Murphy](#)
Project: Develop JAX examples and demos for an ML upcoming textbook
GitHub repo: <https://github.com/probml/pyprobml>
Final report: <https://patel-zeel.github.io/gsoc22>

INVITED TALKS

- **Air Sensors International Conference** *26th Aug, 2022*
Topic: Accurate and Scalable Gaussian Processes for Fine-grained Air Quality Inference
Organized by [CSTEP, India](#) and [UC DAVIS](#)
Bengaluru, India

OPEN SOURCE LIBRARIES

- **ASTRA:** <https://github.com/sustainability-lab/ASTRA>
"AI for Sustainability" Toolkit for Research and Analysis. We use this for research at our [lab](#).
- **BIJAX:** <https://github.com/patel-zeel/bijax>
Bayesian Inference in JAX
- **GPAX:** <https://github.com/patel-zeel/gpax>
Gaussian processes in JAX
- **skgpytorch:** <https://github.com/patel-zeel/skgpytorch>
Scikit-learn like interface for GPyTorch

SELECTED OPEN SOURCE CONTRIBUTIONS

- Stheno:** <https://github.com/wesselb/stheno>
- Added a sparse Gaussian process method called FITC¹
<https://github.com/wesselb/stheno/pull/17>
- GPyTorch:** <https://github.com/cornelius-gp/gpytorch>

¹Edward Snelson and Zoubin Ghahramani. Sparse Gaussian processes using pseudo-inputs. In Y. Weiss, B. Schölkopf, and J. Platt, editors, Advances in Neural Information Processing Systems, volume 18. MIT Press, 2006

- Added metrics module to GPyTorch
<https://github.com/cornellius-gp/gpytorch/pull/1870>
- Added Type hints and exceptions in kernels
<https://github.com/cornellius-gp/gpytorch/pull/1802>

Scikit-learn: <https://github.com/scikit-learn/scikit-learn>

- Accelerated a slow example in scikit-learn
<https://github.com/scikit-learn/scikit-learn/pull/21673>

AWARDS

Awards

- Outstanding Graduate Teaching Fellow award in Probabilistic Machine Learning course. *Fall 2022*
IIT Gandhinagar

Registration grants

- NeurIPS 2022
- GPSS 2022
- AAAI 2022
- ICML 2021
- IEEE VIS 2020

Helped advisor with

- Google Compute grant 2021 (\$5000 credits in Google Cloud Platform)

INDUSTRIAL EXPERIENCE

Data Scientist in R&D team
Inspirsys Solutions Ltd., Chennai, India

Jun 2019 - Dec 2019

TEACHING EXPERIENCE

Graduate Teaching Fellow (teaching a course along with the instructor)

- **Probabilistic Machine Learning**
IIT Gandhinagar *Fall 2022*

Teaching Assistant

- **Probabilistic Machine Learning**
IIT Gandhinagar *Fall 2023*
- **Machine Learning**
IIT Gandhinagar *Spring 2023*
- **Machine Learning**
IIT Gandhinagar *Spring 2022*

Guest lectures

- **Introduction to Active Learning**
Ubiquitous computing, IIT Gandhinagar *Fall 2021*
- **Introduction to Bayesian Machine Learning**
Machine Learning, IIT Gandhinagar *Spring 2021*

SERVICE

Reviewer

- Association for the Advancement of Artificial Intelligence (AAAI) (CORE A*) 2024
- Artificial Intelligence and Statistics (AISTATS) (CORE A) 2023
- ACM COMPASS Posters and Demos 2021
- The ReScience C journal