

Rishab Khincha

github.com/rishabkhincha [in linkedin.com/in/rishabkhincha](https://www.linkedin.com/in/rishabkhincha) [Google Scholar](https://scholar.google.com/citations?user=...) [rishabkhincha](https://twitter.com/rishabkhincha)

Education

May 2023 Aug 2021	The University of Texas at Austin Master of Science, Computer Science Courses - Advanced Topics in Computer Vision, Natural Language Processing Teaching Assistant - Advanced Machine Learning (Fall 2021), McCombs School of Business	Austin, USA
May 2021 Aug 2016	Birla Institute of Technology and Science (BITS) Pilani Bachelor of Engineering, Computer Science Master of Science, Physics	Goa, India CGPA: 9.30/10

Experience

April 2021 Jun 2020	Massachusetts Institute of Technology Fluid Interfaces, MIT Media Lab [🌐] <i>Research Affiliate (Senior Thesis) Advisor: Prof. Pattie Maes</i> <ul style="list-style-type: none">> dementAI: Built robust, multi-modal ensemble methods for severity prediction of Alzheimer's Dementia that beat existing state-of-the-art methods while making more reliable and trustworthy predictions.> Published and presented 3 papers that came out of my thesis in top conferences and workshops.	Cambridge, USA
Jun 2020 May 2020	Goldman Sachs <i>Software Engineer Intern Manager: Raghavendra Rao - Vice President</i> <ul style="list-style-type: none">> Built and successfully deployed a loan reconciliation application as part of the Loans Servicing team.> Worked with multiple technical and operations teams to ensure the integration of the services so that the inconsistencies found in the database is correctly escalated to the operations team as an eTask.	Bangalore, India
Jun 2021 Jan 2020	APP Center for AI Research [🌐] & TCS Research [🌐] <i>Student Researcher Advisors: Prof. Ashwin Srinivasan, Dr. Lovekesh Vig and Prof. Tirtharaj Dash</i> <ul style="list-style-type: none">> Built robust and interpretable deep learning models for medical imaging tasks, improving the existing state-of-the-art in tumour classification and lung disease identification.> Worked with a team of doctors and scientists to understand how AI models can be trusted by clinicians.	Goa, India
July 2021 Feb 2021	RIKEN Cluster for Pioneering Research [🌐] <i>International Program Associate Advisors: Dr. Franco Nori, Dr. Clemens Gneiting</i> <ul style="list-style-type: none">> Studied the noise robustness of analog optimization methods for NP-Hard problems and built mathematical models to understand how the behaviour scales with the problem sizes.> Benchmarked state-of-the-art solvers against white and colored noise to push towards a general theory.	Wako, Japan

Honors and Awards

BITSAA Graduate Application Scholarship, 2021 [🌐] One of the four students out of 3000 awarded the scholarship

Google AI Summer School, 2020 [🌐] One of the fifty students out of 1000s selected for the AI for Social Good track

RIKEN Cluster for Pioneering Research IPA, 2020 [🌐] Awarded ¥1.3M funds for a visit to **Dr. Franco Nori's** lab in Japan.

Goldman Sachs Intern Coding Challenge, 2020 Runner-up in the annual coding contest held amongst interns.

MITACS Globalink Research Internship, 2019 [🌐] Awarded a \$8000 grant to do research at Western University, Canada.

Ingenuity Challenge, 2020 [🌐] Won the optimisation challenge (travelling-thief) organized by the University of Adelaide.

Shell AI Hackathon, 2020 [🌐] Bronze award in the windmill optimisation challenge organized by Shell

Skills

Languages: C, C++, Python, Java

Frameworks: Tensorflow, Keras, BPMN, REST API

Misc.: Git, Linux, \LaTeX , Matlab

Interests

Software: Backend development, App & Web development, ML infrastructure

Machine Learning: Applied ML, Trustworthy AI, Human-AI interaction

Publications & Talks

Uncertainty-Aware Boosted Ensembling in Multi-Modal Settings [🔗]

Utkarsh Sarawgi*, [Rishab Khincha*](#), Wazeer Zulfikar*, Pattie Maes

ML4H Workshop, NeurIPS | International Joint Conference on Neural Networks, Shenzhen, China [NeurIPS '20 | IJCNN '21]

Constructing and Evaluating an Explainable Model for COVID-19 Diagnosis from Chest X-rays [🔗]

[Rishab Khincha](#), Soundarya Krishnan, Krishnan Guru-Murthy, Tirtharaj Dash, Lovekesh Vig, Ashwin Srinivasan

[In preparation]

Why have a Unified Predictive Uncertainty? Disentangling it using Deep Split Ensembles [🔗]

Utkarsh Sarawgi, Wazeer Zulfikar, [Rishab Khincha](#), Pattie Maes

[In preparation]

Robustness to Missing Features using Hierarchical Clustering with Split Neural Networks [🔗] [Poster]

[Rishab Khincha](#), Utkarsh Sarawgi, Wazeer Zulfikar, Pattie Maes

AAAI Conference on Artificial Intelligence, Honolulu, Hawaii, USA [Student Abstract] [AAAI '21]

A Case Study of Transfer of Lesion-Knowledge [🔗] [Slides] [📄]

Soundarya Krishnan, [Rishab Khincha](#), Lovekesh Vig, Tirtharaj Dash, Ashwin Srinivasan

Second Workshop on Medical Image Learning with Less Labels and Imperfect Data, MICCAI, Lima, Peru [MICCAI '20]

CovidDiagnosis: Deep Diagnosis of COVID-19 Patients using Chest X-rays [🔗]

Kushagra Mahajan, Monika Sharma, Lovekesh Vig, [Rishab Khincha](#), Soundarya Krishnan, Adithya Niranjan, Tirtharaj Dash, Ashwin Srinivasan, Gautam Shroff

Second Workshop on Thoracic Image Analysis, MICCAI, Lima, Peru [MICCAI '20]

ECG Signal Analysis on an Embedded Device for Sleep Apnea Detection [🔗]

[Rishab Khincha](#), Soundarya Krishnan, Rizwan Parveen, Neena Goveas

9th International Conference on Image and Signal Processing, Morocco [ICISP '20]

How to do science with ImageCube [Invited Talk] [🔗]

[Rishab Khincha](#), Pauline Barmby

Python in Astronomy 2020, Trinity College Dublin. Cancelled due to COVID-19 [PyAstro '20]

Select Projects

Risk Stratification of Alzheimer's Dementia - [dementAI](#) [🔗]

June'20 - Present

Advisor: [Prof. Pattie Maes](#)

- > Built an open-source platform for modeling risk stratification of Alzheimer's Dementia using spontaneous speech. [🔗]
- > Proposed 'Deep Split Ensembles' to disentangle the predictive uncertainties in the data. [🔗] [🔗] [In preparation]
- > Novel ensembling technique using predictive uncertainties, showing good performance on the benchmark Dementia Bank dataset and potential for other multi-modal ensembling. [🔗] [🔗] [🔗] [ML4H@NeurIPS '20, IJCNN '21]

Deep Diagnosis of COVID-19 from Chest X-rays

March'20 - Present

Advisors: [Prof. Ashwin Srinivasan](#), [Dr. Lovekesh Vig](#), [Prof. Tirtharaj Dash](#)

- > Built a pipeline comprising of models for lung isolation followed by classification into different disease classes, achieving state-of-the-art results on the COVIDx dataset. [🔗] [MIL3D@MICCAI '20]
- > Worked with a radiologist to build a new COVIDr dataset with important radiological annotations to be publicly released.
- > Constructed a neuro-symbolic model and worked with radiologists to evaluate the clinical efficacy of visual and textual explanations from the models. [🔗] [In preparation]

Robustness to Missing Features using Split NNs

August'20 - Present

Advisor: [Prof. Pattie Maes](#)

- > Proposed an effective approach to cluster similar input features using hierarchical clustering and then train proportionately split neural networks with a joint loss. [🔗] [🔗] [AAAI '21]
- > Evaluated this approach on a series of benchmark datasets and show promising improvements even with simple imputation techniques.

Service

Machine Learning for Health Workshop | NeurIPS 2020, 2021 [🔗] Program Committee, Reviewer, Submission Mentor

AI for Public Health Workshop | ICLR 2021 [🔗] Program Committee, Reviewer and Submission Mentor

New in ML Workshop | NeurIPS 2020 [🔗] Reviewer

CA2MH Workshop | ICML 2021 [🔗] Reviewer