# Hetvi Jethwani

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## Academic Details

**Indian Institute of Technology, Delhi** **GPA: 9.44/10.00**
*Bachelors of Technology in Mathematics and Computing* *July 2018 - July 2022*

**Class 12 (AISSCE)** **94.6%**

## Scholastic Achievements

- **Top 7 % of students, IIT Delhi**: in Semester 1, ranked by GPA, amongst 900+ batchmates 2018-19
- **JEE Advanced**: Secured the 99.6th percentile, i.e. rank 645 out of 160,000+ applicants 2017-18
- **KVPY**: Awarded the KVPY-SX Fellowship; secured a rank of 384 amongst 50,000+ applicants 2017-18
- **National Standard Examination in Physics**: Achieved a rank in the state top 10, 2017-18
- **Scholastic Test of Excellence in Mathematical Sciences (CMI, Chennai)**: Top 6 (Physics) 2017-18

## Projects

- **Studying mathematical frameworks to characterize evolution**: Prof. Sumeet Agarwal *MATLAB & Python*
  - Modelling evolution formally by exploring existing theoretical frameworks, and experiments via simulation
  - Establishing equivalence between frameworks based on genetic algorithms, learning theory, & information theory; specifically by studying the role that different kinds of inductive bias over the mutation space play
  - Using this to give insights to the emergence of structural characteristics like modularity
  *Poster "Examining Forms of Inductive Bias Towards 'Simplicity' in Genetic Algorithms to Enhance Evolvability of Boolean Functions" accepted at GECCO 2021, sponspred by ACM; Awarded the ACM-W scholarship for the same*
- **Summarizing hierarchical, multidimensional data**: Prof. Laks Lakshmanan, UBC Vancouver *Java*
  - Constructing and implementing a tractable algorithm to summarize predictive outputs from ML Models over multidimensional data and hence find patterns in the constituent hierarchies
  *Working as a MITACS Globalink research intern*
- **Learning the action space to assist neural architecture search**: Prof. Simon S. Du, Uni. Washington
  - Analysing methods which use latent actions to bias the search procedure towards better architectures
  - The methods being analyzed (Wang et al.) are extensions of the MCTS algorithm; we model this as a M.A.B.
- **Optimized 3D printed splints for wrist theraputics in space**: Baylor College of Medicine, Oxford *MATLAB*
  - Created several fitness metrics to quantify splint-fit measure and used ANOVA to determine significance
  - Developed a User Interface to enable fitness and FEA analysis with ease by medical staff
  *Manuscript under review at Advanced Science*
- **Synopsis generation using reinforcement learning**: Prof. Niladri Chatterjee *Python*
  - Implemented a framework for abstractive, multi-document text summarization of technical reports
  *Selected for Discover & Learn 1-2-3-4 and awarded a grant from Nokia*

## Relevant Coursework

- Linear Algebra and its Applications, Discrete Mathematical Structures, Data Structures and Algorithms, Calculus, Probability and Stochastic Processes, Real Analysis, Differential Equations, Machine Intelligence and Learning, Algebra, Algorithm Design & Analysis, Optimization, Statistical Methods, Data Mining, Functional Analysis, Theory of Computation*, Coding Theory*

## Technical Skills

- **Programming Languages**: Python, MATLAB, Java, C++, PHP, TeX **Other software**: Autodesk Inventor, Krita
- **Libraries:** TensorFlow, PyTorch, Keras, Scikit-Learn, Numpy, Pandas, Jupyter, OpenCV, PIL, PyQuil, Qiskit, PyBDM

## Volunteering Experience

- **Girls Who Code:** club facilitator - teaching girls from underprivileged environments aged 11-13 how to code
- **Organized IITD's first Pride Week** for solidarity with the LGBTQIA+ movement; member of IITD's queer collective

## Extra-Curricular Activities

- **Grader, Forum Moderator, and Teaching Assistant** at **Art of Problem Solving** (@cosmicbhejafry)
- **Literature and art enthusiast:** blogger at "By Polarity", co-founder of an art newsletter, loves Zine making.
- *My poetry has been accepted in small publications like Mellom Press, and even the 1st NeurIPS Resistance AI Workshop!*
- **Second runners up award in CampusHack Hackathon** by DevClub, IIT-D for creating an event-calendar app