Jui Keskar

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School Address: Stanford University, Lantana, 661, Escondido Rd. Stanford, CA 94305

EDUCATION

Stanford University Stanford, CA
- Freshman, *Bachelor of Science* expected June 2029
- Course work and focus areas:
  - *Physics (including Introductory quantum concepts)*
  - *Mathematics (Calculus, Linear Algebra foundations)*
  - *Programming and computational problem solving*
  - *Scientific reasoning and analysis*

Massachusetts Institute of Technology Cambridge, MA
- Research Scholar, *Research Science Institute* (RSI) June-August 2023
  - *Conducted supervised research under Prof. Dr. Ghosh and Dr. Catania*
  - *Hands-on experience with large-scale experimental datasets (>100 TB)*
  - *Research focus: eye-tracking data analysis, signal extraction, statistical modelling*
  - *Authored and presented a peer-reviewed research paper at MIT*

PROFESSIONAL / RESEARCH EXPERIENCE

Independent Researcher – Information Theory June 2024 – August 2024
- Developed a **quantitative framework to measure and benchmark levels of randomness** in randomized data
- Proposed **JChaosIndex**, a mathematical metric to characterize dispersion and stochastic behavior across randomization techniques
- Focused on **measurement of entropy, variability, and distributional structure**, rather than downstream data analysis
- Validated the metric across multiple randomized datasets to compare algorithmic randomness
- Authored and presented a peer-reviewed paper:
  "JChaosIndex: Measuring and Benchmarking Dispersion in Randomized Data"
  5th International Conference on NLP & AI Techniques (NLAI 2024), Zurich

Researcher @ MIT / RSI – Autism Spectrum Disorder June 2023 – August 2023
- Analyzed eye-tracking data to study fixation, saccades, and blink behavior
- Investigated correlations between visual attention metrics and ASD indicators
- Worked with large-scale experimental datasets and signal preprocessing pipelines
- Co-authored and presented a research paper:
  "Associating Autism Spectrum Disorder with Eye Movements using Eye Tracking Protocol"

Inventor and Researcher – Wearable Sensing Systems

JTremor3D June 2020 – May 2021
- Designed and built a wearable **Tremor Profiling** device for patients of Parkinson's Disease using accelerometer and single-board (raspberry Pi). Also devised JTremorIndex for quantifying 3-Dimensional tremor characterization, calibration technique.
- Patent **granted** in India (#568239)
- Represented India as finalist at **International Science and Engineering Fair (ISEF), US as finalist. ISEF is the largest research-based competition at pre-college level in the world**. Won two awards:
  - Grand award for 3rd place in biomedical engineering (from Johnson & Johnson)
  - Science Seed award (from Shanghai Youth Science Education Society)
- This can reduce trail-and-error in dosage planning (quantity and timing). It can be used as digital biomarker for telemedicine. Reduce inconvenience to patient due to travel to clinic and **get tremor-controlled life sooner**

PDCheck3D June 2022 – May 2023
- Built multi-sensor wearable systems to measure **stiffness, gait change and speech distortion.** Also devised PDProgressionIndex for longitudinal measurement. Emphasis on sensor calibration, signal quality assessment.
- **US Patent** (# 20240180478) is pending
- Represented India at ISEF, US as finalist.
- This can help compare patient's condition longitudinally, compare two patients with different symptoms. This can help **configure the brain pacemaker of Deep Brain Stimulation** Surgery patients.

Independent Researcher – Data gathering and analysis June 2020 – Sept 2020

- Designed survey-based data collection using purposive and snowball sampling
- Developed **JMI Index** to quantify mental wellbeing during COVID-19 lockdowns
- Applied statistical techniques to evaluate population-level trends
- Co-authored a peer-reviewed publication in *IJARIIT (2020)*

LEADERSHIP EXPERIENCE

Founder and Editor of *Beat-the-tremor foundation* – Support Hub for patients of Parkinson's Disease August 2022 – till date

- Founded a science-driven patient education platform for Parkinson's Disease
- Built a community of 150+ patients across India
- Published 135+ research-informed newsletters in three languages in about 4 years

TEDx Speaker January 2022 – January 2022

- Invited speaker on *Tremor Profiling and Data-Driven Disease Management*

AWARDS and RECOGNITIONS

- International awards: Grand award and Special award at ISEF, US 2021
- Other national level:
  - Prime Minister's National Child Award (Innovation) – India
  - Dr. A. P. J. Abdul Kalam Ignited Mind Award
  - Grand Awards – IRIS National Science Fair (2021, 2023)
  - Forbes India 30 Under 30 – Special Mention (2023)

ADDITIONAL INFORMATION

Human Languages: English, Hindi, Marathi, German

Computer Programming Languages: Python, C++

Interests and Hobbies: Bharat Natyam (classical dance), guitar, badminton