

SOURYA KAKARLA

New York, NY 10027 | sourya.kakarla@columbia.edu | 240-885-1299 | [linkedin.com/in/sourya-k](https://www.linkedin.com/in/sourya-k)

EDUCATION

Columbia University

New York, NY

Master of Science (Thesis Track) in Computer Science; GPA: 3.7/4.0

Jan 2022 – May 2023

Courses: *Deep Learning, Natural Language Processing, Fundamentals of Speech Recognition, User Interface Design*

Indian Institute of Technology Kharagpur

Kharagpur, India

Bachelor of Technology & Master of Technology in Computer Science; GPA: 3.85/4.0

July 2012 – May 2017

Courses: *Machine Learning, Artificial Intelligence, Foundations of Cryptography, Cryptography & Network Security*

EXPERIENCE

Ladduu AI

New York, NY

Co-Founder & CTO

April 2024 – Present

- Building agentic care for senior citizens by helping them with digital, physical tasks, and social connection.
- Built multilingual voice assistant for iOS that can execute actions.
- Designed and implemented a WhatsApp assistant supporting over 8 Indian languages, providing the first taste of AI for thousands of Indians over age 45.

Skylink (Y-Combinator W22)

New York, NY

Founding Machine Learning (AI/ML) Engineer

July 2023 – Present

- Lead ML team of 6 in building AI-driven travel agent for corporate travel using Large Language Models (LLMs)
- Engineered LLM-based agent orchestration system driving \$3M ARR through enterprise deployment (40k+ users)
- Spearheaded core AI development resulting in BTN Innovation Faceoff 2024 award (sourya.page.link/btnaward)

Columbia University

New York, NY

Teaching Assistant (TA)

Feb 2022 – May 2023

- Courses: Fundamentals of Speech Recognition, Natural Language Processing, Programming for Social Impact
- Mentor 100+ students in *Kaldi, Tensorflow, PyTorch, PHP, HTML/CSS* attaining 4.76/5 TA rating

Tech Lead, INFACT (Early-Stage Startup)

Mar 2022 – Jan 2023

- Partnered with Prof. André Corrêa d'Almeida in transforming initial idea to client-facing MVP in < 3 months
- Single-handedly built analytics dashboard for raw LinkedIn data to monitor industry specific postings using NLP techniques in *Python, spaCy, Tableau*. Recognized as Columbia Tech Ventures invention (sourya.page.link/ctv)
- Executed GTM strategy for NYC DOT, Niteroi City, NYC Mayor's Office achieving > 95% client satisfaction rate

Fusemachines Inc.

New York, NY

Machine Learning Intern, AI Services

June 2022 – Aug 2022

- Collaborated with team of 5 to build Data Science platform prototype leveraging *Kubeflow, MLflow* in 10 weeks
- Implemented NLP module using *Tensorflow, BERT* to detect named entities in medical notes with 76% accuracy

Ladduu (Early-Stage Startup)

AP, India

Co-Founder & Chief Technology Officer

May 2021 – Aug 2022

- Led Product team of 7 in developing speech-enabled hyperlocal e-commerce apps for over 300 users
- Engineered multi-lingual SaaS mobile/web apps (*Kotlin, NodeJS, ReactJS*) generating 6-figure ARR per customer

de.ci.phe.red Lab, IIT Bhilai

Bhilai, India

External Collaborator (Information Security)

Aug 2020 – Present

- Mentored team of 4 in benchmarking lightweight authenticated encryption schemes for India's 5G network project
- Formulated content theft exploits on Indian OTT music platforms making Wynk Music update its security policies

IIT Kharagpur

Kharagpur, India

Junior Research Fellow

Oct 2019 – May 2021

- Researched new impossible differential attacks on reduced round AES cipher for higher number of rounds
- Advanced practical attacks (*C, C++*) on reduced round AES achieving > 1000% speed-up through parallelization

Microsoft

Hyderabad, India

Software Engineer, Dynamics CRM

Jul 2017 – Sep 2019

- Expanded and maintained Email Engagement feature in *Azure Service Fabric* for 1M+ active users
- Advanced UI/UX for Sales Insights in *ReactJS* reducing average task completion time by 20%

PROJECTS

Cognate Detection - M.S Thesis (2022 - 2023) | *Transformers, Word2Vec, GloVe fastText, Kaldi, Python*

- Create machine learning based cognate detection system for Avestan and Sankrit word pairs, the first of its kind
- Optimize the similarity metric computation using semantic, acoustic embeddings achieving >70% accuracy

Automatic Speech Recognition (ASR) (2022 - 2023) | *Kaldi, Python, C++, Bash*

- Optimize pronunciation approach for lexicon in ASR for Tamil and Telugu (in review for publication)
- Achieved significantly improved Word Error Rate for Telugu (16.65%) with respect to the baseline (19.45%)

Object Detection in Haze (2022) | *Computer Vision, YOLOv5, Tensorflow, PyTorch, Python*

- Developed computer vision system for detecting vehicles in hazy images; Placed in Top 5 teams
- Fine-tuned open-source image dehazing, object detection models achieving 70.1 mAP (mean Average Precision)

PUBLICATIONS

Ahaan Dabholkar, **Sourya Kakarla**, Dhiman Saha

Looney Tunes: Exposing the Lack of DRM Protection in Indian Music Streaming Services (sourya.page.link/looney)

Arxiv Pre-print (In Review)

Dhiman Saha, **Sourya Kakarla**, Dipanwita Roy Chowdhury

DINAMITE: Internal Differential Match-in-the-end Attack on 8-round PAEQ (sourya.page.link/dinamite)

IET Information Security (2019)

Dhiman Saha, **Sourya Kakarla**, Srinath Mandava, Dipanwita Roy Chowdhury

Gain: Practical Key-Recovery Attacks on Round-reduced PAEQ (sourya.page.link/hass)

Journal of Hardware and Systems Security (HaSS 2017)

Sourya Kakarla, Srinath Mandava, Dhiman Saha, and Dipanwita Roy Chowdhury

On the practical implementation of impossible differential cryptanalysis on reduced-round AES (sourya.page.link/aes)

International Conference on Applications and Techniques in Information Security (ATIS 2017)

Dhiman Saha, **Sourya Kakarla**, Srinath Mandava, Dipanwita Roy Chowdhury

Gain: Practical Key-Recovery Attacks on Round-reduced PAEQ (sourya.page.link/gain)

Security, Privacy, and Applied Cryptography Engineering (SPACE 2016)

Abhijnan Chakraborty, Bhargavi Paranjape, **Sourya Kakarla**, and Niloy Ganguly

Stop clickbait: Detecting and preventing clickbaits in online news media (sourya.page.link/clickbait)

Advances in Social Networks Analysis and Mining (ASONAM 2016)

AWARDS AND HONORS

Andrew P. Kosoresow Memorial Award for Excellence in Teaching and Service, Columbia University 2023

Invention recognized by Columbia Tech Ventures: *Employment Insights Dashboard* (sourya.page.link/ctv) 2022

Nominated for Prime Minister's Research Fellows: Selected for final round (placed in top 6 CS students) 2020

Nominated for Best Master's Thesis: *Cryptanalysis of AES and AES based ciphers*, IIT Kharagpur 2017

National media coverage: *IIT team builds solution that weeds out 'clickbait' headlines* (sourya.page.link/hindu) 2016

Best Paper, ASONAM 2016 Conference: *Stop Clickbait* paper (sourya.page.link/bestpaper) 2016

Winner, IBM DAY 2016 - IIT Kharagpur exhibition/contest (sourya.page.link/ibmday) 2016

Winner, Microsoft's Code.Fun.Do Finalist Forum nationwide hackathon, India 2015

Winner, Microsoft's Code.Fun.Do hackathon, IIT Kharagpur chapter 2015

Runner-up, IBM's Global Entrepreneurship Summit hackathon, IIT Kharagpur 2015