

Hridoy Sankar Dutta

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LINKS

Website: <https://hridaydutta123.github.io>
Github: <https://github.com/hridaydutta123>
DBLP: <https://tinyurl.com/hsd-dblp>
Google Scholar: <https://tinyurl.com/hsd-google-scholar>
LinkedIn: <https://tinyurl.com/hsd-linkedin>

WORK EXPERIENCE

Research Associate June 2021 - Present
*Department of Computer Science and Technology & Cambridge Cybercrime Centre
University of Cambridge*

Research Assistant February 2021 - June 2021
*Department of Computer Science and Technology & Cambridge Cybercrime Centre
University of Cambridge*

Assistant Project Engineer August 2014 - April 2015
IIT Guwahati Project Title: *Developing Text to Speech System in Assamese Language Phase II*
Supervisor: Prof. S.R.M.Prasanna, Professor, Dept. of EEE, Indian Institute of Technology, Guwahati (IITG)

EDUCATION

PhD in Computer Science and Engineering July 2017 - September 2021
Indraprastha Institute of Information Technology Delhi (IIIT-D)

- Thesis Title: *Detecting and reasoning collusive activities in online media*
- Supervisor: **Dr. Tanmoy Chakraborty**, Assistant Professor & Ramanujan Fellow, Dept. of CSE, Indraprastha Institute of Information Technology Delhi (IIIT-D), India

M.Tech in Computer Science and Engineering 2015 - 2017
National Institute of Technology Durgapur, West Bengal, India

- Thesis Title: *An offline crisis mapping system for large-scale natural disasters*
- Supervisor: **Prof. Subrata Nandi**, Professor, Dept. of CSE, NIT Durgapur and **Dr. Sujoy Saha**, Assistant Professor, Dept. of CSE, NIT Durgapur
- CGPA of **9.15/10** (Ranked 3rd)

B.Tech in Computer Science and Engineering 2009 - 2013
Institute of Science and Technology, Gauhati University, Assam, India

- Thesis Title: *Hierarchical Convergecasting with clustering and spanning tree generation*
- Supervisor: **Dr. Sushanta Karmakar**, Associate Professor, Dept. of CSE, Indian Institute of Technology Guwahati (IIT-G)
- Mentor: **Dr. Sandip Chakraborty**, Associate Professor, Dept. of CSE, Indian Institute of Technology Kharagpur (IIT-KGP)
- CGPA of **9.17/10**

PATENT

- Sujoy Saha, Prithviraj Pramanik, Partha Sarathi Paul, Subrata Nandi, Kingshuk De, Bishak Chandra Ghosh, **Hridoy Sankar Dutta**, Tamal Mondal, Krishnendu Hazra, Indrajit Bhattacharya, Sandip Chakraborty, AN END-TO-END SYSTEM FOR OFFLINE LOCALIZED CRISIS MAPPING AND METHOD OF OPERATION THEREOF, Indian Patent, Application No: 201931050685, Filed on 09 December, 2019.

PAPERS UNDER * - Equal contribution

RE-
VIEW/WORKING PAPERS

- Luis Adán Saavedra del Toro*, **Hridoy Sankar Dutta***, Alastair Beresford and Alice Hutchings. Modded Zoo: A Large-Scale Study of Modded Android Apps and their Markets.
- Luis Adán Saavedra del Toro*, **Hridoy Sankar Dutta***, Alastair Beresford and Alice Hutchings. Surveying Android and iOS Modded App Market Operators and Developers.
- Luis Adán Saavedra del Toro*, **Hridoy Sankar Dutta***, Alastair Beresford and Alice Hutchings. Unveiling the Wild Side of Apps: Exploring the Modded iOS Market Ecosystem.
The above three studies combined is accepted as a Google Aspire Grant.
- **Hridoy Sankar Dutta**, Yanna Papadodimitraki and Alice Hutchings. A needle in a haystack: A First Look into Marketplaces selling multi-platform Online Media Accounts.
- Anahit Sargsyan, **Hridoy Sankar Dutta** and Juergen Pfeffer. Half-Life of YouTube Videos: A Comparative Analysis of Alternative and Mainstream News Channels in the US.

ACCEPTED /
PUBLISHED PAPERS

(Top conferences and high impact journals are highlighted in blue.)
* - Equal contribution

- Quincy Taylor, Derek Hansen, **Hridoy Sankar Dutta** and Justin Giboney. Analyzing online media platforms for hacktivist group organization and proliferation, *The 15th Dewald Roode Workshop on Information Systems Security Research (DRW 2023)* 22-23 June 2023, Glasgow, Scotland.
- Luis Adán Saavedra del Toro, Alastair Beresford, **Hridoy Sankar Dutta** and Alice Hutchings. Analysis of Modded Android Apps and Marketplaces, *Fourth UK Mobile, Wearable and Ubiquitous Systems Research Symposium (MobiUK)* 4th-5th July 2022, UCL.
- **Hridoy Sankar Dutta** and Tanmoy Chakraborty, Blackmarket-driven collusion on online media: a survey. *ACM/IMS Transactions on Data Science (TDS)* 2, no. 4 (2022): 1-37.
- **Hridoy Sankar Dutta**, Nirav Diwan, Tanmoy Chakraborty. Weakening the Inner Strength: Spotting Core Collusive Users in YouTube Blackmarket Network, *16th International AAAI Conference on Web and Social Media (ICWSM)*. vol. 16, pp. 147-158. 2022.
- **Hridoy Sankar Dutta**, Mayank Jobanputra, Himani Negi, Tanmoy Chakraborty. Detecting and Analyzing Collusive Entities on YouTube, *ACM Transactions on Intelligent Systems and Technology (TIST)* 12, no. 5 (2021): 1-28.
- **Hridoy Sankar Dutta**, Kartik Aggarwal and Tanmoy Chakraborty. DECIFE: Detecting Collusive Users Involved in Blackmarket Following Services on Twitter, *32nd ACM Conference on Hypertext and Social Media (HyperText)*, Trinity College Dublin, Ireland, pp. 91-100. 2021.
- **Hridoy Sankar Dutta**, Udit Arora and Tanmoy Chakraborty. ABOME: A Multi-platform Data Repository of Artificially Boosted Online Media Entities, *15th International AAAI Conference on Web and Social Media (ICWSM)*, vol. 15, pp. 1000-1008. 2021.
- **Hridoy Sankar Dutta** and Tanmoy Chakraborty. Adversarial Collusion on the Web: State-of-the-Art and Future Directions. In Big Data Analytics: 8th International Conference, BDA 2020, Sonapat, India, December 15–18, 2020, Proceedings 8, pp. 230-235. Springer International Publishing, 2020.
- Udit Arora*, **Hridoy Sankar Dutta***, Brihi Joshi, Aditya Chetan and Tanmoy Chakraborty. Analyzing and detecting collusive users involved in blackmarket retweeting activities. *ACM Transactions on Intelligent Systems and Technology (TIST)* 11, no. 3 (2020): 1-24.
- **Hridoy Sankar Dutta**, Vishal Raj Dutta, Aditya Adhikary and Tanmoy Chakraborty. HawkesEye: Detecting fake retweeters using Hawkes process and topic modeling. *IEEE Transactions on Information Forensics and Security* 15 (2020): 2667-2678.
- **Hridoy Sankar Dutta** and Tanmoy Chakraborty. Blackmarket-driven Collusion among Retweeters – Analysis, Detection and Characterization. *IEEE Transactions on Information Forensics and Security (TIFS)* 15 (2019): 1935-1944.
- Partha Sarathi Paul, Bishakh Chandra Ghosh, **Hridoy Sankar Dutta**, Kingshuk De, Arka Prava Basu, Prithviraj Pramanik, Sujoy Saha, Sandip Chakraborty, Niloy Ganguly, Subrata Nandi. CRIMP: Here Crisis Mapping Goes Offline. *Elsevier Journal of Network and Computer Applications (JNCA)* 146 (2019): 102418.

- Aditya Chetan*, Brihi Joshi*, **Hridoy Sankar Dutta***, Tanmoy Chakraborty. CoReRank: Ranking to Detect Users Involved in Blackmarket-based Collusive Retweeting Activities. *12th ACM International Conference on Web Search and Data Mining (WSDM)*, pp. 330-338. 2019.
- **Hridoy Sankar Dutta**, Aditya Chetan, Brihi Joshi, Tanmoy Chakraborty. Retweet Us, We Will Retweet You: Spotting Collusive Retweeters Involved in Blackmarket Services, *IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, pp. 242-249. IEEE, 2018.
- Partha Sarathi Paul, **Hridoy Sankar Dutta**, Bishakh Chandra Ghosh, Krishnandu Hazra, Sandip Chakraborty, Sujoy Saha, Subrata Nandi. Offline crisis mapping by opportunistic dissemination of crisis data after large-scale disasters, *2nd ACM SIGSPATIAL International Workshop on the Use of GIS in Emergency Management*, pp. 1-8. 2016.
- Sandip Chakraborty, Suchetana Chakraborty, Sushanta Karmakar, **Hridoy Sankar Dutta**. Hierarchical topology adaptation for distributed convergecast applications, In *29th Annual ACM Symposium on Applied Computing*, pp. 405-407. 2014.

TEACHING	Course Supervisor and Demonstrator, The University of Cambridge <i>Machine Learning and Real-world Data</i>	Jan - Mar 2023
	Supervisor <i>Pembroke Cambridge Summer Programme</i>	July - Aug 2022
	Course Demonstrator, The University of Cambridge <i>Machine Learning and Real-world Data</i>	Jan - Mar 2022
	Course Supervisor, The University of Cambridge <i>Security</i>	May - June 2021
	Teaching Assistant, IIIT Delhi <i>Information Retrieval</i> <i>System Management</i>	Jan - June 2020 August - Nov 2017
	Teaching Assistant, NIT Durgapur <i>Network and Distributed System Laboratory</i> <i>Software Engineering Laboratory</i>	Jan - June 2017 July - Nov 2016
THESIS SUPERVISION	Brigham Young University USA <i>Role: Honors Thesis Advisor</i> <i>Supervisee: Quincy Taylor</i> <i>Project Title: Analyzing Online Media Platforms for Hacktivist Group</i> <i>Organization and Proliferation</i>	January 2023 - March 2023
	Ahmedabad University India <i>Role: Thesis Supervisor</i> <i>Supervisee: Parth Mitesh Shah</i> <i>Project Title: Developing Language-Agnostic thumbnail embeddings</i> <i>for YouTube videos</i>	January 2023 - April 2023
OTHER EXPERIENCES	Co-founder, Assam AI Initiative (AII) <i>A non-profit initiative to promote various scopes of AI</i>	Feb 2021 - Present
	Visiting Researcher, TU Munich <i>Supervisor: Prof. Juergen Pfeffer</i> <i>Professor of Computational Social Science & Big Data, TU Munich</i>	July 2023
	Visiting Researcher, Cardiff University <i>Supervisor: Prof. Pete Burnap</i> <i>Professor, School of Computer Science and Informatics, Cardiff University</i>	March 2019, March 2020

Short-Term Scholar, George Mason University

June 2019 - August 2019

*Supervisor: Dr. Hemant Purohit, Associate Professor, Information Sciences & Technology Department
George Mason University (GMU)*

Student Researcher, ForkIT

Supervisor: Prof. Subrata Nandi, Dept. of CSE, NIT Durgapur &

Dr. Sujoy Saha, Dept. of CSE, NIT Durgapur

May 2016 - June 2017

An end-to-end system to generate offline crisis maps

Summer Research Intern, DISARM Group, NIT Durgapur

Supervisor: Prof. Subrata Nandi, Dept. of CSE, NIT Durgapur

May 2016 - July 2016

Developed web application admin dashboard for Master Control Station at the time of disaster. Django, a python web framework was used to develop the application.

Winter Research Intern, DISARM Group, NIT Durgapur

Supervisor: Prof. Subrata Nandi, Dept. of CSE, NIT Durgapur

December 2015 - January 2016

Developed an opportunistic network for an android application.

Project Intern, IIT Guwahati

Mentored by Dr. Sushanta Karmakar, Dept. of CSE, IIT Guwahati

January 2013 - June 2013

Worked on the Research Topic "Hierarchical topology adaptation for distributed convergecast applications"

**SELECTED
PROJECTS**

All projects are available on git : <https://www.github.com/hridaydutta123>

- **ResourceFinder** - A resource map tool created during Covid-19 to locate nearby grocery shops, hospitals and gas stations with their opening time, closing time, phone number etc.
- **Assamese2Vec** - An open source project for modeling the Assamese language.
- **Awesome Twitter Tools** - A curated list of tools, datasets, research papers and browser extensions related to Twitter.
- **The YouTube Scraper** - Download YouTube video description and video comments without using the YouTube API.
- **Collusive User Detection Tool** - A tool for detection of collusive users in online social networks.
- **Opportunistic Network for Android Application** - Implementation of communication medium for challenge network scenario.
- **Offline Master Control Station** - Implementation of reliable and effective data transfer from opportunistic network and tool for analyzing behaviour of data captured in opportunistic networks.
- **Designing TTS System in Assamese and Manipuri Languages** - It involves building systems for synthesizing natural speech in native Assamese and Manipuri tone from a given text and building user friendly GUIs for the common people.
- **MapDisarm** - Offline efficient transfer of OSM Map tiles among various devices without internet connectivity for gps based recovery in Opportunistic network.

**ACHIEVEMENTS
AND AWARDS**

- Wiseman Prize 2023, Department of Computer Science and Technology, University of Cambridge.
- DAAD AInet fellowship 2023.
- Affiliated Postdoctoral Member, Clare College, University of Cambridge.
- Member of Trinity College Postdoctoral Society, University of Cambridge.
- Awarded ICWSM 2022 Virtual scholarship.
- Awarded ICWSM 2021 scholarship for Underrepresented Groups Program.
- Selected as a Rising Star in Data Science by the Center for Data and Computing (CDAC), University of Chicago.
- Awarded 3rd prize at Ninth IDRB Doctoral Colloquium IDC 2019.
- Awarded Student Travel Grant to attend CODS COMAD 2019.
- Grand Challenge Grade A winner at International Symposium on Embedded Devices (ISED) 2016 at IIT Patna.

- Came 1st Runners Up in Startup Weekend, Kolkata (5-7th August, 2016).
- Media Coverage of our Group in a local daily: <https://tinyurl.com/news-coverage-disarm>
- Won 3rd Prize in Coding Competition at Techniche 2012 (IIT Guwahati Technical Fest Coding Event).
- Attended NASSCOM Product Conclave-2016 as Student Researcher of ForkIT.
- Rank of 3 in Master of Technology and Rank of 7 in Bachelor of Technology.
- Secured 10/10 SGPA in M.Tech (3rd & 4th Semester).
- Secured 10/10 SGPA in B.Tech (6th, 7th & 8th Semester).
- GATE Qualified (2016) – Gate Score : 488 (Rank: 4370).
- GATE Qualified (2015) – Gate Score : 441 (Rank: 6675).
- Recipient of GATE Scholarship (2014) – Gate Score : 582 (Rank: 2139).
- Passed ‘A’ level examination of National Cadet Crops (NCC).

PROFESSIONAL SERVICES

- IEEE Building a Secure Empowered Cyberspace (BuildSEC 2024) (Poster co-chair)
- ACM Conference on Hypertext and Social Media (HyperText 2024) (Reviewer)
- Workshop on Mobility in the Evolving Internet Architecture (MobiCom 2024) (Reviewer)
- International Conference On Distributed Computing And Networking (ICDCN-SoCieTY 2023) (Reviewer)
- ACM International Conference on Web Search and Data Mining (WSDM 2024) (Reviewer)
- Nature Scientific Reports (Reviewer).
- Dewald Roode Workshop on Information Systems Security Research (DRW 2023) (Reviewer).
- Special Interest Group on Information Retrieval (SIGIR 2023 Resource Track) (Reviewer).
- Transactions on Asian and Low-Resource Language Information Processing (ACM TALLIP) (Reviewer).
- International Joint Conference on Artificial Intelligence (IJCAI 2023) (Reviewer).
- ACM Web Conference (WWW 2023) (Reviewer).
- SIAM International Conference on Data Mining (SIAM 2023) (Reviewer).
- Springer Machine Learning Journal (Reviewer).
- Cambridge Cybercrime Conference 2022 (Organizing committee)
- AAAI Conference on Artificial Intelligence (AAAI 2023) (Reviewer)
- ACM International Conference on Web Search and Data Mining (WSDM 2023) (Reviewer)
- International Conference on Neural Information Processing (ICONIP 2022) (Reviewer)
- ACM International Conference on Information and Knowledge Management (CIKM 2022 Short Paper) (Reviewer)
- Special Interest Group on Information Retrieval (SIGIR 2022 Resource Track) (Reviewer).
- Journal of Cybersecurity (Reviewer).
- IEEE Internet Computing (Reviewer).
- International Conference on Natural Language Processing (ICON-2021) (Reviewer).
- SIAM International Conference on Data Mining (SIAM 2022) (Reviewer).
- Springer Journal on Social Network Analysis and Mining (SNAM) (Reviewer).
- ACM International Conference on Information and Knowledge Management (CIKM 2021 Resource Track) (Reviewer).
- International Conference on Natural Language Processing (ICON-2020) (Reviewer)
- IEEE International Conference on Advanced Networks and Telecommunications Systems (IEEE ANTS 2020) (Reviewer)
- International Joint Conference on Web Intelligence and Intelligent Agent Technology (WI-IAT 2020) (Reviewer)
- AAAI Workshop on Combating online Hostile Posts in Regional Languages during Emergency Situation (CONSTRAINT 2021) (Web Chair & Reviewer)

- SIAM International Conference on Data Mining (SIAM 2021) (Reviewer).
- ACM International Conference on Information and Knowledge Management (CIKM 2020) (Reviewer).
- PAKDD Workshop on Data Science for Fake News (DSFN 2020) (Web Chair & Reviewer).
- Wiley Journal on Expert Systems (Reviewer).
- IEEE/WIC/ACM International Conference on Web Intelligence (WI 2019) (External Reviewer).
- International Conference on Secure Knowledge Management in Artificial Intelligence Era (SKM 2019) (External Reviewer).

EVENTS & WORKSHOPS ATTENDED

- Hidden Populations Workshop, University of Oxford (2022).
- Security and Human Behaviour (SHB), University of Cambridge (2021).
- Workshop on AI for Computational Social Systems (ACSS-20), IIIT Delhi (2021).
- Workshop on Combating Fraud Activities using Data Science (CoFad), IIIT Delhi (2020).
- Amazon Research Days, Bangalore (2019).
- Academic Research Summit 2019 on Data Science and AI, IIT Madras, Chennai (2019).
- ACM India Joint International Conference on Data Science and Management of Data (CoDS-COMAD) (2019).
- Workshop on AI for Computational Social Systems (ACSS-19), IIIT Delhi (2019).
- Winter School on Artificial Intelligence, IIIT Delhi (2019).
- Amazon Research Days, Bangalore (2018).
- Young Scientist Conference at India International Science Festival (2018).
- Workshop on Complex and Social Networks, IIT Kharagpur (2017).
- NASSCOM Product Conclave, Bangalore (2016).

TECHNICAL SKILLS

Strongest Areas - Cybercrime, Data-driven Cybersecurity, Social Network Analysis, Data Mining, Applied Machine Learning, Web Mining, Natural Language Processing & System Programming.
Languages - Python, Java, PHP, Dart, C++, UNIX Shell, HTML, CSS, JS, Ajax, Perl
Tools - Git, Android Studio, Adobe Photoshop, JUnit, \LaTeX
Databases - Firebase, MySQL, SQLite, MongoDB

PERSONAL DETAILS

Date of Birth: 12th September, 1991
Gender: Male
Nationality: Indian

REFERENCES

REFERENCES

Dr. Tanmoy Chakraborty, Associate Professor, Dept. of Electrical Engineering, IIT Delhi
Prof. Alice Hutchings, Professor, Dept. of CST, University of Cambridge
Prof. Ross Anderson, Professor, Dept. of CST, University of Cambridge