

# Nilavra Bhattacharya

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## EDUCATION

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- 2017-2023 (expected) **Doctor of Philosophy**  
*School of Information, University of Texas at Austin, USA*  
Areas: *Human-AI interaction, Search as Learning (SAL), Interactive Information Retrieval*
- 2011-2015 **Bachelor of Engineering (Computer Science & Technology)**  
*Indian Institute of Engineering Science and Technology (IIST) Shibpur, India*  
GPA **8.85 / 10.00** (First Class with Honours)

## SKILLS

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- Web-development:** *WebExtensions, PHP, Java, ASP.NET C#, WordPress, Bootstrap, HTML, CSS, JavaScript, jQuery*
- Web-based Data Visualization:** *Highcharts.js, Matplotlib*
- Machine Learning/Data Analysis:** *Keras, TensorFlow, Gensim, Spacy, Python, Scikit-learn, NumPy, SciPy, Pandas*
- Database:** *MySQL, Oracle, PL/SQL, Microsoft SQL Server*
- Quantitative (UX) Research:** *statistical analyses, hypotheses testing, crowdsourcing, Stata software*
- Experimental Design:** *eye-tracking user studies, iMotions biometric platform, Qualtrics Survey*

## MAJOR RESEARCH PROJECTS

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- 2018.01-Present **Interactive Information Retrieval, Search as Learning**
- **Dissertation research:** longitudinal study to correlate search-behaviour with knowledge-gain
  - **Prior work:** Analysed **eye-tracking** data, and **search-interactions**, for predicting document-relevance (using CNNs), and assess knowledge-gain (using word-embedding)
  - Developed **data-visualization** tools: e.g., [link to eye-tracking-viz](#), [link to knowledge-viz](#)
  - **Publications:** SIGIR 2021; CHIIR 2021, 2020, 2019; ETRA 2018
  - *WordPress Plugin, WebExtensions, Python, Keras, Scikit-learn, word2vec, GloVe, MySQL, Stata, Highcharts.js*
- 2018.01-2019.06 **Crowdsourcing & visualizing large datasets for Computer Vision & Deep Learning**
- Developed and delivered a **pipeline** for **crowdsourcing**, storing, and **visualizing** annotations for large-scale **Computer Vision** and **NLP datasets for Human-Computer Interaction (HCI)**
  - Delivered **3 annotated datasets** for **~40,000 images** each
  - Delivered **data-visualization** tool: [vizwiz.org/browse](http://vizwiz.org/browse) (preprint: [arXiv:1912.09336](https://arxiv.org/abs/1912.09336))
  - **Publications:** CSCW 2020 (**Honourable Mention Award**); ECCV 2020; ICCV 2019
  - *Crowdsourcing (MTurk), Keras, Scikit-learn, MySQL, Python, PHP, HTML, CSS, jQuery, Bootstrap*

## INDUSTRY EXPERIENCE

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- 2018.05-2018.08 **QuoData GmbH, Berlin, Germany**  
*Summer Research Intern – DAAD RISE Program (German Academic Exchange Service)*
- Classified biological samples using **CNN** and **RNN** from MALDI-TOF mass-spectrometry data
  - *Keras, TensorFlow, Python, Scikit-learn, Matplotlib, NumPy, SciPy, Pandas*
- 2015.07-2017.07 **Calcutta Electric Supply Corporation (CESC) Limited, Kolkata, India**  
*Software Engineer for Web-applications; Database Programmer*
- 2014.05-2014.07 *Summer Intern (Best Internship Project Award)*
- Designed and developed web-applications for process-management and financial-reporting
  - *Java, Oracle, PL/SQL, HTML, CSS, JavaScript, jQuery, Bootstrap, Highcharts.js*
- 2013.06-2013.07 **Oil and Natural Gas Corporation (ONGC) Ltd., Kolkata, India**  
*Summer Intern, Web-application Development*
- *ASP.NET C#, MS SQL Server, HTML, CSS, jQuery, Bootstrap*

## SELECTED PUBLICATIONS ([Full list in Google Scholar](#))

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Paper Awards: **3** • h-index: **6** • i10-index: **5** • Citations: **124** (across all publications)

1. **Bhattacharya N.** & Gwizdka J. YASBIL: Yet Another Search Behaviour (and) Interaction Logger. *SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2021)*.
2. **Bhattacharya N.**, & Gwizdka J. Visualizing and Quantifying Vocabulary Learning During Search. *Proceedings of the CIKM 2020 Workshop: 1st International Workshop on Investigating Learning During Web Search (CIKM 2020 workshop)*.
3. Jain, P., Ibtasam, S., Sharma, S., **Bhattacharya, N.**, Tuli, A., Gamage, D., ... & Singh, P. From the Margins to the Centre: Defining New Mission and Vision for HCI Research in South Asia. In *Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing Systems (CHI 2021)*.
4. Zheng X., Wang Y., Chiu T., **Bhattacharya N.**, & Gurari D. Vision Skills Needed to Answer Visual Questions. *ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW 2020)*. **Honourable Mention**
5. Gurari D., Zhao Y., Zhang M., & **Bhattacharya N.** Captioning Images Taken by People Who Are Blind. *European Conference on Computer Vision (ECCV 2020)*.
6. **Bhattacharya N.**, Rakshit R., Gwizdka J., & Kogut P. Relevance Prediction from Eye-movements Using Semi-interpretable Convolutional Neural Networks. *Conference on Human Information Interaction and Retrieval (CHIIR 2020)*.
7. **Bhattacharya N.**, Li Q., & Gurari D. Why Does a Visual Question Have Different Answers? In *IEEE International Conference on Computer Vision (ICCV 2019)*.
8. Ebeid I. A., **Bhattacharya N.**, Gwizdka J., & Sarkar A. Analyzing Gaze Transition Behavior Using Bayesian Mixed Effects Markov Models. *Symposium on Eye Tracking Research and Applications (ETRA 2019)*. **Best Short Paper**
9. **Bhattacharya N.**, & Gwizdka J. Measuring Learning During Search: Differences in Interactions, Eye-Gaze, and Semantic Similarity to Expert Knowledge. *Conference on Human Information Interaction and Retrieval (CHIIR 2019)*.
10. Roy S., **Bhattacharya N.**, Chanda B., Chaudhuri B., & Banerjee S. Image Denoising Using Fractal Hierarchical Classification. *Annual Convention of Computer Society of India (CSI 2017)*. **Best Paper Runner-Up**

## AWARDS, HONOURS & FELLOWSHIPS (selected)

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**ACM SIGIR Student Travel Grant:** *SIGIR 2021, CHIIR 2021, CHIIR 2020, CHIIR 2019*

**ACM SIGCHI Student Travel Grant:** *ETRA 2020*

2020	University Continuing Fellowship, <i>University of Texas at Austin – Graduate School</i>
2018	DAAD RISE Professional Scholarship, <i>German Academic Exchange Service (DAAD)</i>
2017	Employee Certificate of Recognition, <i>CESC Limited, Kolkata, India</i>
2017	Runner up, Smart India (National) Hackathon, <i>Govt. of India</i>
2015	AICTE-INAE Travel Grant for Engineering Students, <i>Govt. of India</i>
2014	Best Internship Project Award, <i>CESC Limited, Kolkata, India</i>

## INVITED TALKS, TEACHING & SERVICE (selected)

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Invited Talks	<ul style="list-style-type: none"><li>• “Interactive Information Retrieval” @ ACM SIGCHI Mumbai Chapter Meeting (2021.08)</li><li>• “Study Texas” @ EducationUSA, US Dept. of State (2021.07)</li><li>• “STEM Research in US Universities” @ EducationUSA, US Dept. of State (2020.11)</li></ul>
Teaching Assistant	<b>Quantifying User Experience, Fall ’20, online:</b> co-designed and co-taught a graduate level statistics course for UX Researchers
Peer Reviewing	IP&M; JASIST; IWC; JLIS; Neurocomputing; CHIIR; ETRA; IWILDS; IndiaHCI
Student Volunteer	CSCW 2021; NSF RETTL CIRCLS 2021
University Committees	Faculty Search Committees (2018, 2020, 2021); Doctoral Student Association (2017)
Web-manager webmaster	<ul style="list-style-type: none"><li>• Texas Ballroom: <a href="http://texasballroom.org">texasballroom.org</a> (2021 - 22)</li><li>• HCI for South Asia Research Community: <a href="http://hci4south.asia">hci4south.asia</a> (2020 - Present)</li><li>• Information eXperience (IX) Lab: <a href="http://ixlab.ischool.utexas.edu">ixlab.ischool.utexas.edu</a> (2019 - Present)</li><li>• VizWiz Project: <a href="http://vizwiz.org">vizwiz.org</a> (2019 - 2021)</li></ul>