FAHIM ANZUM

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Ph.D. Candidate, Computer Science, University of Calgary, Canada
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RESEARCH INTEREST

My research interest includes interpreting users' behavioral and psychological traits in social media interaction by leveraging large language models and AI, with a focus on fostering fair, explainable, and trustworthy human-machine teaming. My work develops and evaluates interpretable data mining frameworks, promotes ethical and explainable AI practices, aiming to bridge technical innovation with user trust.

EDUCATION

Ph.D., Computer Science Aug 2025 (Expected)
University of Calgary (UCalgary), Calgary, Alberta
Committee: Marina L. Gavrilova, Usman Alim, Michael Ullyot, Mario Costa Sousa, Ehud Sharlin
Ph.D. Thesis: Towards Developing Trust-Aware Recommender Systems by Leveraging Users' Affective Traits and Trust Scores

M.Sc., Computer Science Aug 2021
University of Calgary, Calgary, Alberta
Advisor: Mario Costa Sousa
M.Sc. Thesis: Exploring Convolutional Neural Networks and Transfer Learning for Oil Sands Drill Core Image Analysis

B.Sc., Computer Science and Engineering Jan 2018
Military Institute of Science and Technology (MIST)
Bangladesh University of Professionals (BUP), Dhaka, Bangladesh
Advisors: Muhammad Nazrul Islam, Wali Mohammad Abdullah

PUBLICATIONS

Peer-reviewed Conference, Journal, and Book Chapter Papers

[13] **Fahim Anzum** and Marina L. Gavrilova. "EmoBlend Fusion: Leveraging Handcrafted and Deep Features for Emotion Detection." in *IEEE International Conference on Human-Machine Systems (ICHMS 2024)*, pp. 1-6. [pdf] [***Top 3 Best Student Paper**]

[12] **Fahim Anzum**, Ashratuz Zavin Asha, Lily Dey, Artemy Gavrilov, Fariha Iffath, Abu Quwsar Ohi, Liam Pond, Md Shopon, Marina L Gavrilova. "A Comprehensive Review of Trustworthy, Ethical, and Explainable Computer Vision Advancements in Online Social Media." in *Global Perspectives on the Applications of Computer Vision in Cybersecurity*, 2024, pp. 1-46. [pdf]

[11] **Fahim Anzum** and Marina L. Gavrilova. "Emotion Detection From Micro-Blogs Using Novel Input Representation." in *IEEE Access*, Vol 11, 2023, pp. 19512-19522. [pdf]

[10] Zaman Wahid, ASM Hossain Bari, **Fahim Anzum** and Marina. L. Gavrilova, "Human Micro-Expression: A Novel Social Behavioral Biometric for Person Identification," in *IEEE Access*, Vol 11, 2023, pp. 57481-57493. [pdf]

[9] **Fahim Anzum**, Hamidreza Hamdi, Usman Alim, Mario Costa Sousa, "Exploring Convolutional Neural Networks and Machine Learning for Oil Sands Drill Core Image Analysis," in *EAGE Digitalization Conference and Exhibition*, 2023, pp. 1-5. [pdf]

[8] Marina L Gavrilova, **Fahim Anzum**, ASM Hossain Bari, Yajurv Bhatia, Fariha Iffath, Quwsar Ohi, Md Shopon, Zaman Wahid, "A multifaceted role of biometrics in online security, privacy, and trustworthy decision making." in *Breakthroughs in Digital Biometrics and Forensics*, Cham: Springer International Publishing, 2022, pp. 303-324. [pdf]

[7] **Fahim Anzum**, Ashratuz Zavin Asha, Marina L. Gavrilova. "Biases, fairness, and implications of using AI in social media data mining." in *IEEE International Conference on Cyberworlds **(CW 2022)***, pp. 251-254. [pdf]

[6] Kaitlin De Chastelain Finnigan, **Fahim Anzum**, Jon Rokne, Marina L Gavrilova, "Weighted Lexicon-based Sentiment Analysis for Women Career Traits in Information Technology." in *IEEE International Conference on Cognitive Informatics & Cognitive Computing **(ICCI* CC 2022)***, pp. 91-98. [pdf] [***Best Paper Award**]

[5] Ashratuz Zavin Asha, **Fahim Anzum**, Patrick Finn, Ehud Sharlin, Mario Costa Sousa, "Designing External Automotive Displays: VR Prototypes and Analysis", in *ACM International Conference on Automotive User Interfaces and Interactive Vehicular Applications **(AutomotiveUI 2020)***, pp. 74-82. [pdf]

[4] Ashratuz Zavin Asha, **Fahim Anzum**, SM Faisal Rahman, Muhammad Nazrul Islam, Mehreen Hoque, "Towards Developing an Intelligent Fire Exit Guidance System Using Informed Search Technique", in *IEEE International Conference of Computer and Information Technology **(ICCIT 2018)***, pp. 1-6. [pdf]

[3] Adnan Sharif, **Fahim Anzum**, Ashratuz Zavin Asha, Sayma Alam Suha, Anika Ibnat, Muhammad Nazrul Islam, "Exploring the Opportunities and Challenges of Adopting Augmented Reality in Education in a Developing Country", in IEEE International Conference on Advanced Learning Technologies **(ICALT 2018)**, pp. 364-366. [pdf]

[2] Fahim Ahmed, **Fahim Anzum**, Muhammad Nazrul Islam, Wali Mohammad Abdullah, Sazid Al Ahsan, Moneruzzaman Rana, "A new algorithm to compute single source shortest path in a real edge weighted graph to optimize time complexity", in IEEE International Conference on Computer and Information Science **(ICIS 2018)**, pp. 185-191. [pdf]

[1] **Fahim Anzum**, Fahim Ahmed, M Shariful Azim, Mosaddek Hossain, Shifat Zaman, Farhan Hasib, Sazid Al Ahsan, "Smart self position aligning chair for a modern conference room.", in IEEE International Conference on Computer and Information Science **(ICIS 2018)**, pp. 263-268. [pdf]

Under Review

[3] **Fahim Anzum** and Marina L. Gavrilova. "EmoBlend Fusion: Towards Trustworthy Human-Machine Teaming through Enhanced Emotion Detection in Microblogs." in *IEEE Transactions on Human-Machine Systems*, 2025.

[2] Lily Dey, **Fahim Anzum**, Ulises Charles-Rodriguez, A S M Hossain bari, Jean-Christophe Boucher, Aleem Bharwani, Marina L. Gavrilova. "A Digital Lighthouse: Exploring Health Concerns and Public Trust Using LLM-Driven Opinion Mining from Canadian Reddit Communities" in *PLOS One*, 2025.

[1] Farzaneh Dehghani, Mahsa Dibaji, **Fahim Anzum**, Lily Dey, Alican Basdemir, Sayeh Bayat, Jean-Christophe Boucher, Steve Drew, Sarah Elaine Eaton, Richard Frayne, Gouri Ginde, Ashley Harris, Yani Ioannou, Catherine Lebel, John Lysack, Leslie Salgado Arzuaga, Emma Stanley, Roberto Souza, Ronnie de Souza Santos, Lana Wells, Tyler Williamson, Matthias Wilms, Zaman Wahid, Mark Ungrin, Marina Gavrilova, Mariana Bento. "Trustworthy and Responsible AI for Human-Centric Autonomous Decision-Making Systems" in *Artificial Intelligence Review*, Springer, 2025. [pdf]

SCHOLARSHIPS, AWARDS AND HONORS

- **Best Student Paper Award** (Top 3), **IEEE ICHMS**, 2024
- **Best Paper Award**, **IEEE ICCI*CC**, 2022
- **Alberta Innovates Scholarship** by the Government of Alberta, 2021
  Amount: CA$124,000 over four years
- **Eyes High International Doctoral Recruitment Scholarship** by UCalgary, 2021
  Amount: CA$60,000 for four years
- **Mitacs-Accelerate Graduate Research Internship** by UCalgary, 2019
  Amount: CA$50,000
- **Graduate Research Award** by UCalgary, Dept. of Computer Science, 2020
  Amount: CA$11,000
- **International Graduate Tuition Award** by UCalgary, 2021
  Amount: CA$12,000 for four years
- **International Graduate Recruitment Award** by UCalgary, 2019
  Amount: CA$2,000
- **Visa Differential Scholarship** by UCalgary, 2019
  Amount: CA$4,1267.17
- **Commandant's List Award** by MIST, the most prestigious recognition for maintaining a GPA over 3.80 in the academic year, 2015 and 2016
- **National Higher Secondary School Merit Scholarship** by Bangladesh Government, 2012
- **National Secondary School Merit Scholarship** by Bangladesh Government, 2010
- **National High School Merit Scholarship** by Bangladesh Government, 2008

TEACHING EXPERIENCES

University of Calgary, Canada *Sep 2019 – Present*
Role: Sessional Instructor, Dept. of CS
Taught 160+ Undergrad Students

- **CPSC 231: Introduction to Computer Science for Computer Science Majors I**
  - Mentored students during weekly office hours to effectively learn programming.
  - Conducted in-class activities, exams, and assignments.
  - Supervised Head TA and TAs.

Role: Graduate Teaching Assistant, Dept. of CS
Taught 400+ Undergrad and Grad Students

- **CPSC 217: Introduction to Computer Science for Multidisciplinary Studies I**
  Course Instructors: Dr. James Tam, and Dr. Jonathan Hudson
  Semesters: Spring 2020 (50 students, 2 tutorials), Spring 2023 (90 students, 4 tutorials), Winter 2023 (50 students, 2 tutorials)
- **CPSC 319: Data Structures, Algorithms, and Their Application**
  Course Instructor: Dr. Jonathan Hudson; Semester: Winter 2020 (60 students)
- **Data 604: Working with Data at Scale**
  Course Instructor: Dr. Leanne Wu; Semester: Fall 2022 (80 students)

- **Data 201: Thinking with Data**
  Course Instructor: Sydney Pratte; Semester: Fall 2021 (100 students)

United International University, Bangladesh *Jun 2018 - Aug 2018*
Role: Course Instructor/ Lecturer, Dept. of CSE
Taught 600+ undergrad students

- **CSE 421: Computer Graphics**
  Semesters: Summer 2018 (90+ students, 2 classes), Fall 2018 (90+ students, 2 classes), Summer 2019 (90+ students, 2 classes)
- **CSE 422: Computer Graphics Lab**
  Semesters: Summer 2018 (90+ students, 2 classes), Fall 2018 (90+ students, 2 classes), Summer 2019 (90+ students, 2 classes)
- **CSE 427: Graph Theory**
  Semesters: Fall 2018 (20 students)
- **CSE 428: Graph Theory Lab**
  Semesters: Fall 2018 (20 students), Summer 2019 (50 students)
- **CSE 323: Software Engineering**
  Semesters: Spring 2019 (25 students), Summer 2019 (41 students)

Primeasia University, Bangladesh *Feb 2018 - Jun 2018*
Role: Course Instructor/ Lecturer, Dept. of CSE
Taught 200+ undergrad students

- **CSE 107: Introduction to Computers**
  Semesters: Summer 2018 (50+ students)
- **CSE 110: Computer Fundamentals Laboratory**
  Semesters: Summer 2018 (50+ students)
- **CSE 211: Discrete Mathematics**
  Semesters: Summer 2018 (50+ students)
- **CSE 415: Computer Networks**
  Semesters: Summer 2018 (50+ students)

INDUSTRY EXPERIENCES

Suncor Energy Inc., Canada Sep 2019 – Aug 2021

- Mitacs-Accelerate Graduate Research Intern
- Developed a hybrid ML-CNN model for facies and grain size prediction, improving performance by 20% over Suncor's system.
- Led a team of 10+ geoscientists and engineers to deploy the model in Suncor's pipeline.

Global Voice Telecom Limited, Bangladesh Dec 2016 – Jan 2017

- Intern/ Undergraduate Industrial Trainee, Technology Division
- Obtained hands-on experience on monitoring Voice over Internet Protocol (VoIP)

ACADEMIC SERVICES

Conference Program Committee

- Technical Program Committee Member of 12th International Symposium on Applied Computing for Software and Systems **(ACSS)**, to be held on July 4-5, 2025, in Kolkata, India

- Organizing and Logistic Sub-Committee Member of the IEEE 21st International Conference on Computer and Information Technology **(ICCIT)**, 2018, Dhaka, Bangladesh

Reviewer: Conferences, Journals

- ACM KDD: Workshop on Generative AI for Recommender Systems and Personalization: Papers, 2024
- ACM CHI: Late Breaking Works, 2024
- IEEE Access: Regular Papers, 2022, 2023, 2024
- Springer, the Visual Computer: Regular Papers, 2024
- Springer Transactions on Computational Science, Papers, 2022, 2023, 2024
- IEEE ICCSA: Papers, 2022, 2023
- Springer Nature book proposal on "Biases and ethics in social intelligence".

VOLUNTEERING

Student Volunteers

- ACM DIS 2023, Pittsburgh, USA

University Services: University of Calgary

- Academic Event Committee Member | Graduate Student's Association (GSA) Sep 2022 – Apr 2023
- Vice-President Communications | Computer Science Graduate Society (CSGS) Apr 2023 – Apr 2024
- Judge | CalgaryHacks, Competitive Programming Contest Feb 2022

MENTORING

- Lily Dey | Master's student, Dept. of CS, UCalgary Jan 2024 – Present
- Wamika Jha | Master's student, Dept. of CS, UCalgary May 2024
- Zaman Wahid | Master's Student, Dept. of CS, UCalgary Jan 2022 – Jun 2023
- Kaitlin De Chastelain Finnigan | Bachelor's Student, Dept. of CS, UCalgary Jun 2022 – Dec 2022

SELECTED INVITED TALKS, SEMINARS, AND POSTERS

Guest Lecture | United International University, Bangladesh Jan 2023
Talk: Ethics in Online Social Media Data Mining

Poster Presentation | University of Calgary, Canada Sep 2022
Poster: AI in Social Media Data Mining: Viewing Through the Lens of Ethical Aspects [URL]

Guest Lecture | Bournemouth University, England Sep 2022
Talk: Deep Learning in Social Media Opinion Mining

Guest Lecture | DATA 501 - Data Science Capstone, University of Calgary, Canada Jul 2022
Talk: Introduction to Deep Learning and Convolutional Neural Networks

Invited Talk | Visualization and Graphics Group, University of Calgary, Canada Jul 2022
Talk: Drill Core Image Classification using Convolutional Neural Networks

M.Sc. Grad Seminar | University of Calgary, Canada Jul 2021
Talk: Exploring Transfer Learning and Convolutional Neural Networks for Predicting Mean Grain Size from Oil Sands Drill Core Images