

Faculty of Computer Science

OVERVIEW

Since 1968, the University of New Brunswick (UNB) has been a key player in the development of computer science in both Canada and the world. In 1990, UNB established the first Faculty of Computer Science in Canada. At any given time, the majority of the faculty members of Computer Science at UNB are involved in research and development projects with the private and public sector.

RESEARCH CAPABILITIES

- Algorithm Design and Analysis
- Bioinformatics
- Artificial Intelligence
- Hardware/Software Co-Design
- Embedded Systems
- High Performance Computing
- Network and Information Security
- Big Data Analysis
- Software Engineering
- Computer and Data Communication
- Wireless and Mobile Computing
- Machine Learning and Data/Text Mining
- Web Services

MAJOR PROJECTS

Massive Multicore

Researcher(s): Dr. Kenneth B. Kent

Allowing machines using a vast number of processing cores to function more efficiently when using Java.

Communication Network Systems and Research

Researcher(s): Dr. Brad Nickerson

Seeking to enhance communication networks and services, with particular regard to radios, wireless communication systems, Internet data traffic analysis and adaptive web sites.

Fuzzy Adaptive Survivability Tools for Intrusion Detection Systems

Researcher(s): Dr. Ali Ghorbani

Creating a multi-agent based intrusion detection system that enables networks to survive in the event of a large scale intrusion.

Business Ontology Development Framework

Researcher(s): Dr. Weichang Du and Dr. Ali Ghorbani

Developing a highly extensible and secure environment for ontology extraction, storage, management and usage in the context of a business system.

A Multifaceted Approach to Botnet Detection, Mitigation and Visualization

Researcher(s): Dr. Ali Ghorbani

Developing a hierarchical network application-based framework for the automatic discovery, visualization and mitigation of botnets (DVM-Bot) aimed at overcoming some of the limitations of the current approaches to botnet detection.

Intelligent Information Analysis, Interpretation and Dissemination (I-AID) Systems

Researcher(s): Dr. Ali Ghorbani

Mining large volumes of disparate data, both structured and unstructured, as it passes through an organization, assessing the data for relevance, providing context to it and identifying and notifying relevant recipients of the information in a timely manner.

xVu TVE Customer Experience Monitoring for Over-the-Top Video

Researcher(s): Dr. Wei Song

Developing effective tools to simulate user experience monitoring for video delivery and designing novel solutions to enhance video service quality over wireless mobile networks.

FACILITIES

Information Technology Centre

Providing a means for UNB and researchers to interact with the information and communications technology industry.

IBM Centre for Advanced Studies

Promoting and cultivating collaborative research between IBM and UNB.

Advanced Computational Research Laboratory

Providing high performance computing resources for research and instruction to UNB and many other universities in Atlantic Canada.

Information Security Centre of Excellence

Promoting research on information and communication security.

Intelligent & Adaptive Systems Group

Promoting research on machine and statistical learning, data mining, intelligent agents and multi-agent systems.

For more information please visit: www.unb.ca/fredericton/cs/