State of CPI 2022

N. Asokan
Executive Director, CPI
Cybersecurity and Privacy at UWaterloo

Longstanding tradition of innovation in cybersecurity/privacy

- From the days of Bill Tutte through Certicom, BlackBerry, etc.

Outstanding Expertise in cybersecurity/privacy technologies

Multidisciplinary approach
Outstanding expertise

World-class in cybersecurity/privacy technologies (within top-15 in the world)

#1 in Canada, by far!
Multidisciplinary Approach

~60 faculty members across all faculties

Cybersecurity/privacy
(a) of different application areas
(b) through different lenses
CPI Represents cybersecurity/privacy at UWaterloo

Vision

To significantly broaden Waterloo's strength, reputation, and impact in cybersecurity and privacy.

Mission

To facilitate collaborative research, training, and commercialization initiatives in cybersecurity and privacy, across the entire University of Waterloo community and in conjunction with companies, research centres and other institutions, both in Canada and internationally.
CPI Expertise Areas cover a broad spectrum

- Legal & Policy Aspects of Security and Privacy
- Human & Societal Aspects of Security and Privacy
- Data Science Security & Privacy
- Privacy Enhancing Technologies
- Cryptography
- Quantum Safe Comms.
- Network Security
- Software, Hardware, & Systems Security
CPI Expertise Areas cover a broad spectrum

- Legal & Policy Aspects of Security and Privacy
- Human & Societal Aspects of Security and Privacy
- Data Science Security & Privacy
- Privacy Enhancing Technologies
- Cryptography
- Quantum Safe Comms.
- Network Security
- Software, Hardware, & Systems Security
Strategic Goals and Objectives: 2018

Extend UWaterloo’s Strength and Impact in Cybersecurity and Privacy

Strengthen Existing [Internal] Research Collaborations

Foster External Research Collaborations

Facilitate Applications for Institutional-level Grants and Funding

Increase Visibility of Research and Attract Best New Faculty and HQP
National Cybersecurity Consortium (NCC)

- **2020**: Co-founded by CPI as a federally incorporated not-for-profit
- **2021**: CPI led the business development committee of NCC
- **2022**: Named lead recipient for Cyber Security Innovation Network ($80 million)
- **2023-2026**: NCC funding of proposals in full swing
- **Purpose**: Research, Training, and Commercialization
CPI strengthening collaborations

- Expanded to ~60 researchers (+20 members, ~+150 supervised students)
  - Top-15 worldwide: research in technological aspects of cybersecurity/privacy
  - Unique multidisciplinary perspective
- Bootstrapping excellence
  - Seed grant program, scholarships and awards, Chippie cluster
- Several new community-building initiatives
  - CPI Talks, CPI RoundTable Discussions, CPI Spotlight series, mailing lists, websites
- Facilitating external collaborations and institutional level funding
CPI’s engagement

Students

- Scholarships/Awards, Seed Grants, Chippie Compute Servers
- Annual conference, website, newsletters, mailing lists, social media
- Spotlight series, CPI Talks

Faculty

- Faculty and Student Advisory Committees
- RoundTable Discussions

External
CPI facilitates grant proposals

Examples of **CPI-Initiated** grant proposals

- **Raouf Boutaba (MATH/CS)** – DnD IDEaS 5G Micronet, $1.5M ✓: “Faster, Stronger, More Secure: Advancing 5G capabilities and concepts for defence and security”

- **Plinio Morita (Health/SPPHS & ENG/SYDE)** – Mitacs + Region of Waterloo, $500,000: “Distributed ledger for children and youth to access services and data analytics”

- **Guang Gong (ENG/ECE)** – OCI VIP + Fxland, $160,000: “Design and analysis of efficient security layer for Fula decentralized cloud storage ecosystem”

Examples of **CPI-Supported** grant proposals

- **Adam Molnar (ARTS/Soc & Legal)** component of the CFREF proposal

- **Sebastian Fischmeister (ENG/ECE)** DnD IDEaS, $230,000 (1a) ✓: “Remaining Vigilant: Identifying Cyber Dependencies, Vulnerabilities and Threats”
CPI members’ success at attracting research funding

CPI facilitated CFI, ORF-RI, CRC, and CFREF grants/applications

NCC expected to bring significant grants
Strategic Goals and Objectives: 2018

Extend UWaterloo’s Strength and Impact in Cybersecurity and Privacy

NCC CSIN  Top-15 in cybersecurity/privacy technologies  Unique multidisciplinary approach

Strengthen Existing [Internal] Research Collaborations

Comms revamp (websites, social media, newsletter, et.)  Seed Grants, RoundTable Discussions

Foster External Research Collaborations

Facilitating major industry partnerships (Industry chairs, Targeted projects, Alliance, ORF-RE)

Facilitate Applications for Institutional-level Grants and Funding

Facilitating major grant applications (CFI, CRC, CFREF)

Increase Visibility of Research and Attract Best New Faculty and HQP

+20 new members (~+150 students)
Strategic Directions and Initiatives 2022 - 2027

1. Strengthen Engagement with CPI Community
2. Nurture the NCC
3. Facilitate Excellence in Research
4. Facilitate Strengthening & Broadening Training
5. Build Partnerships
6. Influence Public Policy
7. Promote Cybersecurity and Privacy Awareness
CPI brings unique value to its members and UWaterloo

Leverages UWaterloo’s cybersecurity/privacy expertise towards larger goals
- Example: UWaterloo’s role in the success of National Cybersecurity Consortium

Facilitates cybersecurity/privacy research and training at UWaterloo
- Seed grants, Student scholarships/awards, new training initiatives

Promotes UWaterloo’s cybersecurity/privacy strengths
- CPI Talks, Spotlight articles, newsletters, mailing lists, social media

Draft Progress and Renewal Report at the CPI Internal Website (UWaterloo login required)
CPI 2022 Annual Conference

Twin themes:

(1) The Talent Gap and (2) Data Collection & Effective Public Policy

▪ Panels featuring academics and practitioners (from industry, public sector)

Talks

▪ **Industry experts**: Neil Desai, Magnet Forensics; Andrew Walenstein, BlackBerry

▪ **CPI experts**: Diogo Barradas, MATH/CS; Guang Gong ENG/ECE

▪ **Invited academic expert**: Ninghui Li, CERIAS/Purdue

Panel on NCC: featuring NCC Directors

Poster session