



# **IEEE 2020 CIC/COGMI/TPS JOINT CONFERENCES**

## **VIRTUAL CONFERENCE DEC 1-3**

## **CONFERENCE PROGRAM**

Version  
Nov 30, 2020



# Useful Resources

**Slack Workspace** – [ieeecictpscogmi3030.slack.com](https://ieeecictpscogmi3030.slack.com)

**Conference Website**

- CIC: <http://www.sis.pitt.edu/lersais/conference/cic/2020/>
- TPS: <http://www.sis.pitt.edu/lersais/conference/tps/2020/>
- CogMI: <http://www.sis.pitt.edu/lersais/conference/cogmi/2020/>

**Conference Program with Zoom links -**

[http://www.sis.pitt.edu/lersais/conference/common/resources/program\\_overview.pdf](http://www.sis.pitt.edu/lersais/conference/common/resources/program_overview.pdf)

**Conference App** – Select IEEE CIC TPS CogMI 2020



**Android** - <https://play.google.com/store/apps/details?id=com.jcubesoftware.ccentral>

**iOS** - <https://apps.apple.com/us/app/meet-in-here/id1478053414>

# IEEE 2020 CIC/CogMI/TPS Joint Conferences

## Overview Day 1: Tuesday, Dec. 1, 2020

8:00am-8:30pm	Opening (PC Chairs)		
8:30am-10:30am	CIC Vision 1 (Australia + Asia) Session Chair Surya Nepal, CSIRO Data61, Australia	CogMI Vision 1 (Asia + EU) Session Chair Christin Seifert, University of Duisburg-Essen, Germany	TPS Vision 1 (Australia + EU) Session Chair Barbara Carminati, University of Insubria, Italy
Break			
10:45am-11:45am	Keynote 1 (TPS) What Are Machine Learning Models Hiding? Vitaly Shmatikov, Cornell University and Cornell Tec, US Session Chair: James Joshi, University of Pittsburgh, US		
Break			
12:00am–2:00pm	Plenary Panel CIC Collaborative Intelligence and Killer Applications in Edge Computing Panelists (Last Name Alphabetical) Schahram Dustdar, Vienna University of Technology, Vienna Indrakshi Ray, Colorado State University, US Mani Srivastava, University of California at Los Angeles, US Tao Zhang, NIST, US Panel Moderator/Session Chair Songqing Chen, George Mason University, US		
Break			
2:15am–4:15pm	Plenary Panel TPS Trust, Privacy and Security in the IoT Era: Can We Have All? Panelists (Last Name Alphabetical) Elisa Bertino, Purdue University, US Indrajit Ray, Colorado State University, US Bhavani Thuraisingham, University of Texas at Dallas, US Cliff Wang, North Carolina State University, US Panel Moderator/Session Chair Murat Kantarcioglu, University of Texas at Dallas, US		
Break			
4:30am-6:30pm	Plenary Panel Pandemics Artificial Intelligence and Privacy for Pandemics Panelists (Last Name Alphabetical) Sandeep Gopisetty, IBM Research, US James Joshi, University of Pittsburgh, NSF, US Calton Pu, Georgia Institute of Technology, US Jaideep Vaidya, Rutgers University, US Panel Moderator/Session Chair Latifur Khan, University of Texas at Dallas, US		

# IEEE 2020 CIC/CogMI/TPS Joint Conferences

## Overview Day 2: Wednesday, Dec. 2, 2020

8:30am-10:30am	<b>CogMI Research Session 1</b> (Asia + EU) <i>Session Chair</i> <b>Julian Jarrett</b> , <i>University of Technology, Jamaica and Lutron Electronics, US</i>		<b>TPS Research Session 1</b> (Asia + EU + US) <i>Session Chair</i> <b>Michael Sheng</b> , <i>Macquarie University, Australia</i>
10:30am-12:30pm	<b>CIC Research Session 1</b> (EU + US west) <i>Session Chair</i> <b>Songqing Chen</b> , <i>George Mason University, US</i>	<b>CogMI Vision 2</b> (EU+US) <i>Session Chair</i> <b>Paolo Boldi</b> , <i>University of Milan, Italy</i>	<b>TPS Vision 2</b> <i>Session Chair</i> <b>Ravi Sandhu</b> , <i>University of Texas at San Antonio, US</i>
12:30pm-2:30pm	<b>Plenary Panel CogMI</b> <b>Cognitive Machine Intelligence and Killer Applications</b> Panelists (Last Name Alphabetical) <b>Tarek Abdelzaher</b> , <i>University of Illinois at Urbana Champaign, US</i> <b>Paolo Boldi</b> , <i>University of Milano, Italy</i> <b>Ashok Goel</b> , <i>Georgia Institute of Technology, US</i> <b>Kristina Lerman</b> , <i>University of Southern California, US</i> Panel Moderator/Session Chair <b>Huan Liu</b> , <i>Arizona State University, US</i>		
Break			
2:45pm-3:45am	<b>Keynote 2 (CogMI)</b> <b>Synthesizing Interpretable Behavior for Human-Aware AI Systems</b> <b>Subbarao Kambhampati</b> , <i>Arizona State University</i> Session Chair: <b>Huan Liu</b> , <i>Arizona State University, US</i>		
Break			
4:00pm-6:00pm	<b>CIC Research Session 2</b> (EU + US west) <i>Session Chair</i> <b>Wei-Shinn Ku</b> , <i>Auburn University &amp; NSF, US</i>	<b>CogMI Vision 3</b> (Pandemic – US west/east) <i>Session Chair</i> <b>Indrakshi Ray</b> , <i>Colorado State University, US</i>	<b>TPS Vision 3 Privacy</b> <i>Session Chair</i> <b>Jaideep Vaidya</b> , <i>Rutgers University, U</i>

# IEEE 2020 CIC/CogMI/TPS Joint Conferences

## Overview Day 3: Thursday, Dec. 3, 2020

10:30am-12:30pm	<b>TPS Research Session 2</b> <i>Session Chair</i> <b>Balaji Palanisamy, University of Pittsburgh, US</b>	<b>CogMI Research Session 2</b> <i>Session Chair</i> <b>Keke Chen, Marquette University, US</b>	<b>TPS Research Session 3</b> <i>Session Chair</i> <b>Amirreza Masoumzadeh, State University of New York at Albany, US</b>
Break			
1:00pm-3:00pm	<b>CogMI Research Session 3</b> <i>Session Chair</i> <b>Runhua Xu, IBM Almaden Research Center, US</b>		<b>TPS Vision 4 (US)</b> <i>Session Chair</i> <b>Calton Pu, Georgia Institute of Technology, US</b>
Break			
3:15pm-5:15pm	<b>Industry Plenary Panel</b> <b>Autonomous Driving, IoT and Cloud: Practical Challenges &amp; Opportunities</b> Panelists (Last Name Alphabetical) <b>Ashutosh Dutta, Johns Hopkins University, US</b> <b>Christopher Oster, Lutron Electronics, US</b> <b>Gautam Patil, Gist Ventures, US</b> <b>Leon Stenneth, HERE Technologies, US</b> <b>Tao Zhang, NIST, US</b> Panel Moderator/Session Chair <b>Ashish Kundu, Graphalgo Inc., US</b>		
5:20pm – 6pm	<b>Best Paper Awards and Next Year Planning</b>		



# IEEE 2020 CIC/CogMI/TPS Joint Conferences

Day 1: Tuesday, Dec. 1, 2020

## Welcome and Opening Remarks

8:00 am – 8:30 am

Zoom Link: <https://zoom.us/j/99589209896?pwd=aXA1cU5MEZNdK1mOGh3VFBubnlPdz09>

All Chairs

## CIC Vision Session 1: Cloud Computing and Internet of Things

8:30 am – 10:30 am

Zoom Link: <https://zoom.us/j/93217843683?pwd=aFVBMGhhQVh3T2FrVjNzR1RxbnUxZz09>

Session Chair: **Surya Nepal, CSIRO Data61, Australia**

- **cVM: Containerized Virtual Machine**  
**Gong Su** (IBM Research, US)
- **SenShaMart: A Trusted IoT Marketplace for Sensor Sharing**  
**Dimitrios Georgakopoulos**, Prem Prakash Jayaraman (Swinburne University of Technology, Australia) and Anas Dawod (University of Melbourne, Australia)
- **Crowdsharing Wireless Energy Services**  
**Athman Bouguettaya**, Abdallah Lakhdari and Amani Abusafia (University of Sydney, Australia)
- **Challenges in Developing Collaborative IoT Systems**  
**Flavia Delicato** and Paulo Pires (Fluminense Federal University, Brazil)
- **The 10 Research Topics in the Internet of Things**  
Wei Emma Zhang (University of Adelaide, Australia) and **Michael Sheng** (Macquarie University, Australia)
- **Design and Implementation of a Platform for Managing Time-Sensitive IoT Applications**  
Harindu Korala, Ali Yavari, Dimitrios Georgakopoulos and Prem Prakash Jayaraman (Swinburne University of Technology, Australia)

## CogMI Vision Session 1: Innovative Machine Learning

8:30 am – 10:30 am

Zoom Link: <https://zoom.us/j/96437070140?pwd=MEdabUN0UkRrazBGbTVrZTIIL1V6QT09>

Session Chair: **Christin Seifert, University of Duisburg-Essen, Germany.**

- **Deep Learning Mechanism for Pervasive Internet Addiction Prediction**  
**Zon-Yin Shae** and Jeffrey Tsai (ASIA University, Taiwan)
- **Functional Perceptron using multi-dimensional activation functions**  
Chuncheon Yi, **Wonik Choi**, (Inha University, South Korea) Ling Liu (Georgia Institute of Technology, US) and Youngjun Jeon (Papaya Co., Ltd., South Korea)

- **End-to-End Learning from Noisy Crowd to Strong Machine Learning Models**  
Taraneh Younesian, Chi Hong, Amirmasoud Ghiassi, (Delft University of Technology, Netherlands)  
Robert Birke (ABB Future Labs, Switzerland) and **Lydia Y. Chen** (Delft University of Technology, Netherlands)
- **Online Intelligent Music Recommendation: The Opportunity and Challenges for People Well-Being Improvement**  
**Jerry Jialie Shen** and Karen Rafferty (Queen's University Belfast, UK)

## TPS Vision Session 1: Security and Privacy in Intelligent Systems and Applications

8:30 am – 10:30 am

Zoom Link: <https://zoom.us/j/97429309655?pwd=WDDdOcdEYRGxZbGZMa1JsU2xhKytIZz09>

Session Chair: **Barbara Carminati**, *University of Insubria, Italy*

- **A Queueing Solution to Reduce Delay in Processing of Disclosed Vulnerabilities**  
Andrew Feutrill (CSIRO Data61 and University of Adelaide, Australia), Matthew Roughan, Joshua Ross (University of Adelaide, Australia) and **Yuval Yarom** (CSIRO Data61 and University of Adelaide, Australia)
- **Security and Privacy for a Sustainable Internet of Things**  
**Helge Janicke** (CSIRO Data61 and Edith Cowan, Australia), Sharif Abuadbba and Surya Nepal (CSIRO Data61, Australia)
- **An Exploratory Analysis on Users' Contributions in Federated Learning**  
Jiyue Huang (Delft University of Technology, Netherlands), Rania Talbi (INSA-Lyon, France), Zilong Zhao (GIPSA, France), Sara Boucchenak (INSA-Lyon, France), Lydia Y. Chen and **Stefanie Roos** (Delft University of Technology, Netherlands)
- **Utility-Optimized Synthesis of Differentially Private Location Traces**  
**Emre Gursoy** (Koc University, Turkey), Vivekanand Rajasekar and Ling Liu (Georgia Institute of Technology, US)
- **Big Data Privacy Management: A Vision Paper**  
**Xiaofeng Meng** (Renmin University of China, China) and Xiaojian Zhang (Henan University of Financial and Law, China)

**Coffee Break (15 min)**

## Keynote 1 - TPS

10:45 am – 11:45 am

Zoom Link: <https://zoom.us/j/95158309449?pwd=c1hPc1BSMzIYWXRFaFlxWjl3TWo2Zz09>

Session Chair: **James Joshi**, *University of Pittsburgh, US*

## What Are Machine Learning Models Hiding?

**Vitaly Shmatikov**

*Professor, Cornell University and Cornell Tec, US*





## Coffee Break (15 min)

### Plenary Panel - CIC

12:00 pm – 2:00 pm

Zoom Link: <https://zoom.us/j/97497184521?pwd=V2lhNXlhMGxMS2F5NEtsUDRHT2kwQT09>

## Collaborative Intelligence and Killer Applications in Edge Computing

Moderator: **Songqing Chen, George Mason University, US**

Panelists (Last Name Alphabetical)

- **Schahram Dustdar, Vienna University of Technology, Vienna**
- **Indrakshi Ray, Colorado State University, US**
- **Mani Srivastava, University of California at Los Angeles, US**
- **Tao Zhang, NIST, US**

## Coffee Break (15 min)

### Plenary Panel - TPS

2:15 pm – 4:15 pm

Zoom Link: <https://zoom.us/j/92967927707?pwd=MWdobDQvd2JOWkdZLzhTSFRpbTFWZz09>

## Trust, Privacy and Security in the IoT era: Can We Have All

Moderator: **Murat Kantarcioglu, University of Texas at Dallas, US**

Panelists (Last Name Alphabetical)

- **Elisa Bertino, Purdue University, US**
- **Indrajit Ray, Colorado State University, US**
- **Bhavani Thuraisingham, University of Texas at Dallas, US**
- **Cliff Wang, North Carolina State University, US**

## Coffee Break (15 min)

### Plenary Panel - Pandemics


4:30 pm – 6:30 pm


Zoom Link: <https://zoom.us/j/98224868506?pwd=cXozN1Vaay85Y3I0SEVwOWZGeUZEdz09>

## Artificial Intelligence and Privacy for Pandemics

Moderator: **Latifur Khan, University of Texas at Dallas, US**

Panelists (Last Name Alphabetical)

- 
- **Sandeep Gopisetty**, *IBM Research, US*
  - **James Joshi**, *University of Pittsburgh, NSF, US*
  - **Calton Pu**, *Georgia Institute of Technology, US*
  - **Jaideep Vaidya**, *Rutgers University, US*



## IEEE 2020 CIC/CogMI/TPS Joint Conferences Day 2: Wednesday, Dec. 2, 2020

### CogMI Research Session 1

8:30 am – 10:30 am

Zoom Link: <https://zoom.us/j/94681175038?pwd=ZHdNLON1c1hWYlIReHdZNzRpclZtdz09>

Session Chair: **Julian Jarrett**, *University of Technology, Jamaica and Lutron Electronics, USA*

- **Learning Latent Perception Graphs for Personalized Unknowns Recommendation**  
**Lo Pang-Yun Ting** (National Cheng Kung University, Taiwan), Shan-Yun Teng (National Cheng Kung University, Taiwan), Suhan Wang (Penn State University, US), Kun-Ta Chuang (National Cheng Kung University, Taiwan) and Huan Liu (Arizona State University, US)
- **Unseen Filler Generalization In Attention-based Natural Language Reasoning Models**  
**Chinhui Chen**, Yi-Fu Fu, Hsiao-Hua Cheng and Shou-De Lin (National Taiwan University, Taiwan)
- **Fine-grained, aspect-based semantic sentiment analysis within the economic and financial domains**  
Luca Barbaglia, Sergio Consoli and Sebastiano Manzan (European Commission Joint Research Centre, Italy)
- **Interpretable Next Basket Prediction Boosted with Representative Recipes**  
**Riccardo Guidotti** and Stefano Viotto (University of Pisa, Italy)
- **A Hybrid Text Classification and Language Generation Model for Automated Summarization of Dutch Breast Cancer Radiology Reports**  
**Daphne Theodorakopoulos**, **Elisa Nguyen**, Shreyasi Pathak (University of Twente, Netherlands), Jeroen Geerdink, Onno Vijlbrief (Hospital Group Twente, Netherlands), Maurice van Keulen and Christin Seifert (University of Duisburg-Essen, Germany)

### TPS Research Session 1: Authentication and Adversarial Learning

8:30 am – 10:30 am

Zoom Link: <https://zoom.us/j/98071649912?pwd=MmE0Rm1McGpoUzBrZldHNuU1EeVd5UT09>

Session Chair: **Michael Sheng**, *Macquarie University, Australia*

- **A Needle in a Haystack: Finding a Suitable Lightweight IoT Authentication Protocol and Improving Its Usability**  
**Nan Li** (Newcastle University, Australia), Dongxi Liu, Surya Nepal (CSIRO Data61, Australia) and Guangyu Pei (Boeing Inc., US)
- **Towards IoT Security Automation and Orchestration**  
Yifeng Zheng, Arindam Pal, **Alsharif Abuadbba**, (CSIRO Data61, Australia) Shiva Raj Pokhrel (Deakin University, Australia), Surya Nepal (CSIRO Data61, Australia) and Helge Janicke (The Cyber Security Cooperative Research Centre, Australia)
- **imdpGAN: Generating Private and Specific Data with Generative Adversarial Networks**  
**Saurabh Gupta**, Arun Balaji Buduru and Ponnuram Kumaraguru (Indraprastha Institute of Information Technology, India)

- **BCB-X3DH: a Blockchain Based Improved Version of the Extended Triple Diffie-Hellman Protocol**  
Armando Ruggeri, Antonio Celesti, Maria Fazio, Antonino Galletta and Massimo Villari (University of Messina, Italy)
- **Handling Incomplete Information in Policy Evaluation using Attribute Similarity**  
**Sowmya Ravidas** (Eindhoven University of Technology, Netherlands), Indrakshi Ray (Colorado State University, US) and Nicola Zannone (Eindhoven University of Technology, Netherlands)

## CIC Research Session 1: Emerging Technologies in Internet Computing Systems and Services

10:30 am – 12:30 pm

Zoom Link: <https://zoom.us/j/99215261484?pwd=SmU0cVh3UFpFWHN2TXZUeHNaN0MwZz09>

Session Chair: **Songqing Chen, George Mason University, US**

- **Proactive Digital Companions in Pervasive Hypermedia Environments**  
**Kimberly Garcia**, Simon Mayer, (University of St. Gallen, Switzerland) Alessandro Ricci (University of Bologna, Italy) and Andrei Ciortea (University of St. Gallen, Switzerland)
- **Sustainability-aware Resource Provisioning in Data Centers**  
**Jingzhe Wang**, Balaji Palanisamy and Jinlai Xu (University of Pittsburgh, US)
- **HydraSpace: Computational Data Storage for Autonomous Vehicles**  
**Ruijun Wang**, Liangkai Liu and Weisong Shi (Wayne State University, US)
- **Memory Abstraction and Optimization for Distributed Executors**  
**Semih Sahin**, Ling Liu, Wenqi Cao, Qi Zhang, James Bae and Yanzhao Wu (Georgia Institute of Technology, US)
- **Discovering Localized Information for Heterogeneous Graph Node Representation Learning**  
Lin Meng (Florida State University, US), Ning Yan, Masood Mortazavi (Futurewei Inc., US) and Jiawei Zhang (Florida State University, US)
- **PerfDB: A Performance Data Management System for Fine-Grained Performance Anomaly Detection**  
**Joshua Kimball**, Rodrigo Alves Lima, (Georgia Institute of Technology, US) Yasuhiko Kanemasa (Fujitsu Labs, Japan) and Calton Pu (Georgia Institute of Technology, US)

## CogMI Vision Session 2:

10:30 am – 12:30 pm

Zoom Link: <https://zoom.us/j/91627746921?pwd=SUIvWU5QaUU1Y09vNC93amhYM2RaQT09>

Session Chair: **Paolo Boldi, University of Milan, Italy**

- **On Uncertainty and Robustness in Large-Scale Intelligent Data Fusion Systems**  
**Tarek Abdelzaher** (University of Illinois at Urbana-Champaign, US), Benjamin Marlin (University of Massachusetts, US), Gabriela Ciocarlie (SRI International, US), Adam Cobb, Mark Dennison, Brian Jalaian, Lance Kaplan, Tiffany Raber, Adrienne Raglin, Piyush Sharma (US Army Research Labs, US), Mani Srivastava (University of California, Los Angeles, US), Theron Trout (US Army Research Labs, US), Meet Vadera (University of Massachusetts, US) and Maggie Wigness (US Army Research Labs, US)
- **Towards Distributed Edge-based Systems**  
**Schahram Dustdar** and Ilir Murturi (Vienna University of Technology, Austria)
- **Real-Time Data Quality Analysis**  
**Arun Iyengar**, Dhaval Patel, Shrey Shrivastava, Nianjun Zhou, Anuradha Bhamidipaty. (IBM Research)
- **Causality and Uncertainty of Information for Content Understanding**  
**Adrienne Raglin** (Army Research Laboratory, US), Raha Moraffah and Huan Liu (Arizona State University, US)

## TPS Vision Session 2: Security in Intelligent Systems and Application

10:30 am – 12:30 pm

Zoom Link: <https://zoom.us/j/95214935549?pwd=TVQ2TXFoaXRaQ2pNSHZVQjIIONGh0dz09>

Session Chair: **Ravi Sandhu, University of Texas at San Antonio, US**

- **Requirements and Challenges for Secure and Trustworthy UAV Collaboration**  
Marco Anisetti, Claudio A. Ardagna, (University of Milano, Italy) Barbara Carminati, **Elena Ferrari** (University of Insubria, Italy) and Cora Lisa Perner (Airbus Cybersecurity GmbH Munich, Germany)
- **MultiModal Deception Detection: Accuracy, Applicability and Generalizability**  
Vibha Belavadi, Yan Zhou, (University of Texas at Dallas, US) Jonathan Z Bakdash (U.S. Army Research Lab South, US), **Murat Kantarcioglu**, Daniel C Krawczyk, Linda Nguyen, Jelena Rakic and Bhavani Thuraisingham (University of Texas at Dallas, US)
- **Energy Attacks on Mobile Devices**  
**Ashish Kundu** (Graphalgo Inc., US), Zhiqiang Lin (Ohio State University, US) and Joshua Hammond (University Texas at Dallas, US)
- **From Blue-Sky to Practical Adversarial Learning**  
Aminollah Khormali, Ahmed Abusnaina, (University of Central Florida, US) Songqing Chen (George Mason University, US), Daehun Nyang (Ewha Womans University, South Korea) and **David Mohaisen** (University of Central Florida, US)
- **Quantum Adversarial Machine Learning: Status, Challenges, and Perspectives**  
**Demarcus Edwards** and Danda Rawat (Howard University, US)

## Plenary Panel - CogMI

12:30 pm – 2:30 pm

Zoom link: <https://zoom.us/j/95153563123?pwd=TUNKdDVHWUICZlg3czJVTnJEVVB2UT09>



## Cognitive Machine Intelligence and Killer Applications

Moderator: **Huan Liu**, *Arizona State University, US*

Panelists (Last Name Alphabetical)

- **Tarek Abdelzaher**, *University of Illinois at Urbana Champaign, US*
- **Paolo Boldi**, *University of Milano, Italy*
- **Ashok Goel**, *Georgia Institute of Technology, US*
- **Christin Seifert**, *University of Duisburg-Essen, Germany*
- **Kristina Lerman**, *University of Southern California, US*

Coffee Break (15 min)

## Keynote 2 - CogMI

2:45 pm – 3:45 am

Zoom Link: <https://zoom.us/j/98881321157?pwd=SGdtUjdBZk1LQVdLTGtVRUs5OGFiZz09>

Session Chair: **Huan Liu**, *Arizona University, USA*

## Synthesizing Interpretable Behavior for Human-Aware AI Systems

**Subbarao Kambhampati**

*Professor, Past President of AAAI, Arizona State University, US*

Coffee Break (15 min)

## CIC Research Session 2:

4:00 pm – 6:00 pm

Zoom Link: <https://zoom.us/j/92519881267?pwd=TmkxY3RpTSs4bThTMVc2Tk9tdmNMdz09>

Session Chair: **Wei-Shinn Ku**, *Auburn University & NSF, US*

- **ParaSDN: An Access Control Model for SDN Applications based on Parameterized Roles and Permissions**  
**Abdullah Al-Alaj**, Ram Krishnan and Ravi Sandhu (The University of Texas at San Antonio, US)
- **A Short Survey of LSTM Models for De-identification of Medical Free Text**  
**Joffrey Leevy** and Taghi Khoshgoftaar (Florida Atlantic University, US)
- **PriSE: Slenderized Privacy-Preserving Surveillance as an Edge Service**  
**Alem Fitwi**, Yu Chen (SUNY- Binghamton, US) and Sencun Zhu (Pennsylvania State University, US)
- **Cyber Attacks on Smart Farming Infrastructure**  
**Sina Sontowski**, Maanak Gupta, (Tennessee Tech University, US) Sai Sree Laya Chukkapalli (University of Maryland Baltimore County, US), Mahmoud Abdelsalam (Manhattan College, US), Sudip Mittal (University of North Carolina Wilmington, US), Anupam Joshi (University of Maryland Baltimore County, US) and Ravi Sandhu (The University of Texas at San Antonio, US)

- **Hcpcs2Vec: Healthcare Procedure Embeddings for Medicare Fraud Prediction**  
Justin Johnson and Taghi Khoshgoftaar (Florida Atlantic University, US)

## CogMI Vision Session 3: Cognitive Intelligence and Pandemics

4:00 pm – 6:00 pm

Zoom Link: <https://zoom.us/j/98527662225?pwd=V1phNmo3ZWNMUWdkTkViYS8wZmpWZz09>

Session Chair: **Indrakshi Ray, Colorado State University, US**

- **Global Pandemic: Business Model Impact on Enterprises**  
Sandeep Gopisetty (IBM Research)
- **Social Media and Ubiquitous Technologies for Assessing Remote Worker Wellbeing and Productivity in a Post-Pandemic World**  
Vedant Das Swain, Koustuv Saha, Gregory Abowd and **Munmun De Choudhury** (Georgia Institute of Technology, US)
- **Challenges and Opportunities in Rapid Epidemic Information Propagation with Live Knowledge Aggregation from Social Media**  
Calton Pu, Abhijit Suprem and Rodrigo Lima. (Georgia Institute of Technology, US)
- **A Tipping Point? Heightened self-disclosure during the Coronavirus pandemic**  
Anna Squicciarini, Sarah Rajatmajer, Prasanna Umar and Taylor Blose (Pennsylvania State University, US)

## TPS Vision Session 3: Privacy and Access Control in Intelligent Systems and Applications

4:00 pm – 6:00 pm

Zoom Link: <https://zoom.us/j/93398390392?pwd=emhMOUgyZUs4VWl5MWV5aWlyZmV1dz09>

Session Chair: **Jaideep Vaidya, Rutgers University, US**

- **Privacy in the Era of Big Data, Machine Learning, IoT, and 5G**  
Elisa Bertino (Purdue University, US)
- **A Framework for Privacy-Preserving Genomic Data Analysis Using Trusted Execution Environments**  
Aref Asvadishirehjini, **Murat Kantarcioglu** (University of Texas at Dallas, US) and Bradley Malin (Vanderbilt University Medical Center, US)
- **Convergent Access Control to Enable Secure Smart Communities**  
Smriti Bhatt (Texas A&M University-San Antonio, US) and **Ravi Sandhu** (University of Texas at San Antonio, US)
- **Maintaining Privacy and Utility in IoT System Analytics**  
Daniel Mosse, Henrique Potter and Stephen Lee (University of Pittsburgh, US)
- **Towards Dynamic Access Control for Privacy**  
Chinmay Kundu (KIIT University, India)



## Special Session on Humans and Cyber Security (HACS2020)

### Welcome / Opening

08:30 EST (00:30\* AEDT)

Zoom Link: <https://zoom.us/j/96801250538?pwd=M3lHQytSeCtESlRqb09lM25CdnQxQT09>

Session Chair: Dr Marthie Grobler

### HACS2020 Session 1

08:40 EST (00:40\* AEDT)

Zoom Link: <https://zoom.us/j/93860846773?pwd=MHVJTGkzNytCR0pPbysyUWhOMEtXZz09>

Session Chair: Dr Shirang Mare

- **Invisible Security: Protecting Users with No Time to Spare** — Josiah Dykstra
- **Assessing the provision of public-facing cybersecurity guidance for end-users** — Nirosha Holton and Steven Furnell
- **Smart Storytelling: Video and Text Risk Communication to Increase MFA Acceptability** — Sanchari Das, Shirang Mare and L. Jean Camp

### HACS2020 Panel Discussion

09:30 EST (01:30\* AEDT)

Zoom Links: <https://zoom.us/j/97118598958?pwd=SjQrNOVXbTk5dJnNGdDVmtxT3N1Zz09>

#### “The role that humans play within cyber security and privacy for organizational security”

Panel moderator: **Dr Sanchari Das**

Panel members:

- **Divya Sharma**
- **Maritza Johnson**
- **Igor T**
- **Gerald Auger**
- **Yasemin Acar**

### Break

10:30 EST (02:30\* AEDT)

Participants are encouraged to join the CIC tracks, plenaries and keynotes during this break

### HACS2020 Keynote

14:45 EST (06:45\* AEDT)

Zoom Links: <https://zoom.us/j/97572605612?pwd=L2Y2ZGFFd3p1YUZjMnNFRmt5aXJSUT09>

**Beyond Phishing: The socio-technical aspects of implementing security in an agile organisation**

**Prof Debi Ashenden**, *University of Adelaide, Australia*





## HACS2020 Round Table Discussion

15:30 EST (07:30\* AEDT)

Zoom Links: <https://zoom.us/j/93643702286?pwd=YzFZcHpKS0hzdIlkzN2ZQWmkyQWh2dz09>

**“State-of-the-art research from academic front on ‘hacking the human’”**

Round table moderator: **Dr Jay Jeong**

Round table members:

- **Peter Mayer**
- **Kanad Basu**
- **L. Jean Camp**
- **Rinku Dewri**

## Break

16:30 EST (08:30\* AEDT)

## HACS2020 Session 2

17:00 EST (09:00\* AEDT)

Zoom Links: <https://zoom.us/j/95781884801?pwd=RklUYk9iUUUscDVyVzlwFmNnQUp4dz09>

Session Chairs: Dr Hamza Sellak

- **Designing User-Centric Information Security Management Systems in Financial Services Organisations** — Ivano Bongiovanni
- **What Information is Required for Explainable AI? A Provenance-based Research Agenda and Future Challenges** — Fariha Tasmin Jaigirdar, Carsten Rudolph, Gillian Oliver, David Watts and Chris Bain
- **Cybersecurity in Medical Private Practice: Results of a Survey in Audiology** — Josiah Dykstra, Rohan Mathur and Alicia Spoor

## Closing, Final Thoughts, Future of HACS

17:50 EST (09:50\* AEDT)

Zoom Links: <https://zoom.us/j/91462906302?pwd=MXZqVi9PdHptKzN1SCszcJgvYlJPUT09>

Session Chairs: Dr Marthie Grobler



## IEEE 2020 CIC/CogMI/TPS Joint Conferences

Day 3: Thursday, Dec. 3, 2020

### TPS Research Session 2: Access Control and Authentication

10:30 am – 12:30 pm

Zoom Link: <https://zoom.us/j/99586366917?pwd=dXdEK0FUSmJSZkxRWXpnQ0FFWHZzUT09>

Session Chair: **Balaji Palanisamy**, *University of Pittsburgh, US*

- **A Model for the Administration of Access Control in Software Defined Networking using Custom Permissions**  
**Abdullah Al-Alaj**, Ravi Sandhu and Ram Krishnan (University of Texas at San Antonio, US)
- **Role-Based Access Control Models for Android**  
**Samir Talegaon** and Ram Krishnan (University of Texas at San Antonio, US)
- **AuthN-AuthZ: Integrated, User-Friendly and Privacy-Preserving Authentication and Authorization**  
Tyler Phillips, Xiaoyuan Yu, Brandon Haakenson, Shreya Goyal, Xukai Zou, Saptarshi Purkayastha (Indiana University-Purdue University Indianapolis, US) and Huanmei Wu (Temple University, US)
- **MAFIA: Multi-layered Architecture For IoT-based Authentication**  
**Pranut Jain**, Henrique Potter, Adam J. Lee and Daniel Mosse (University of Pittsburgh, US)
- **A Survival Game Analysis to Personal Identity Protection Strategies**  
**David Liau**, Razieh Nokhbeh Zaeem and Suzanne Barber (University of Texas at Austin, USA)
- **A Modern Implementation of System Call Sequence Based HIDS**  
**Jeffrey Byrnes**, Thomas Hoang, Nihal Nitin Mehta and Yuan Cheng (California State University, USA)


### CogMI Research Session 2

10:30 am – 12:30 pm

Zoom Link: <https://zoom.us/j/98881755359?pwd=M0QvaHFCVIAzdnMwcGtZUG5NcEJLUT09>

Session Chair: **Keke Chen**, *Marquette University, US*

- **A Decentralized Approach for Determining Configurator Placement in Dynamic Edge Networks**  
**Ilir Murturi** (Vienna University of Technology, Austria), Mohammadreza Barzegaran (Technical University of Denmark, Denmark) and Schahram Dustdar (Vienna University of Technology, Austria)
- **Cross-Modal Joint Embedding with Diverse Semantics**  
**Zhongwei Xie** (Wuhan University of Technology, China), Ling Liu (Georgia Institute of Technology, US), Yanzhao Wu (Georgia Institute of Technology, US), Lin Li (Wuhan University of Technology, China) and Luo Zhong (Wuhan University of Technology, China)
- **Explaining Any Time Series Classifier**



Riccardo Guidotti, Anna Monreale, Francesco Spinnato, Dino Pedreschi (University of Pisa, Italy) and Fosca Giannotti (ISTI-CNR, Italy)

- **Machine Learning Systems in the IoT: Trustworthiness Trade-offs for Edge Intelligence**  
**Wiebke Toussaint** and Aaron Yi Ding (Delft University of Technology, Netherlands)
- **Low-shot Learning in Natural Language Processing**  
**Congying Xia** (University of Illinois at Chicago, US), Chenwei Zhang (Amazon Inc., US), Jiawei Zhang (Florida State University, US), Tingting Liang (Hangzhou Dianzi University, China), Peng Hao (Beihang University, China) and Philip Yu (University of Illinois at Chicago, US)
- **Detecting cybersecurity attacks using different network features with LightGBM and XGBoost learner**  
Joffrey L. Leevy, John Hancock, **Richard Zuech** and Taghi Khoshgoftaar. (Florida Atlantic University, US)

### TPS Research Session 3: Authentication and Adversarial Learning

10:30 am – 12:30 pm

Zoom Link: <https://zoom.us/j/98873609654?pwd=UFFHaVkrTXpQUmhNb0VjYmZGaEt3dz09>

Session Chair: **Amirreza Masoumzadeh**, *State University of New York at Albany, US*

- **Revisiting Secure Computation Using Functional Encryption: Opportunities and Research Directions**  
**Runhua Xu** (IBM Research, US) and James Joshi (University of Pittsburgh, US)
- **Adversarial Deception in Deep Learning: Analysis and Mitigation**  
**Wenqi Wei**, Ling Liu, (Georgia Institute of Technology, US) Margaret Loper (Georgia Tech Research Institute, US), Ka Ho Chow, Mehmet Emre Gursoy, Stacey Truex and Yanzhao Wu (Georgia Institute of Technology, US)
- **Monet: Impressionism as A Defense Against Adversarial Examples**  
**Huangyi Ge**, Sze Yiu Chau and Ninghui Li (Purdue University, US)
- **Is Your Phone You? How Privacy Policies of Mobile Apps Allow the Use of Your Personally Identifiable Information**  
**Kai Chih Chang**, Razieh Nokhbeh Zaeem and K. Suzanne Barber (University of Texas at Austin, USA)
- **Adversarial Objectness Gradient Attacks in Real-time Object Detection Systems**  
**Ka Ho Chow**, Ling Liu, Margaret Loper, Juhyun Bae, Emre Gursoy, Stacey Truex, Wenqi Wei and Yanzhao Wu (Georgia Institute of Technology, US)
- **Physics Reasoning for Intrusion Detection in Industrial Networks**  
**Mohammad Yahya**, Nasir Sharaf, Julian Rrushi, (Oakland University, USA) Homing Tay, Bing Liu and Kai Xu (Fortinet, Canada)

Coffee Break (30 min)



## CogMI Research Session 3

1:00 pm – 3:00 pm

Zoom Link: <https://zoom.us/j/96889147032?pwd=UjISd3hmYzduQXgrRUppMzE4VmN5Zz09>

Session Chair: **Runhua Xu, IBM Almaden Research, US**

- **Artificial Dendrites: an Algorithm**  
**Zachary Hutchinson** (University of Maine, US)
- **Promoting High Diversity Ensemble Learning with Ensemble Bench**  
**Yanzhao Wu**, Ling Liu, Zhongwei Xie, James Bae, Ka Ho Chow and Wenqi Wei (Georgia Institute of Technology, US)
- **Automatic bird sound detection in long range field recordings using Wavelets & Mel filter bank features**  
**Suhas Bn** (Penn State University, US)
- **Cortically-Coupled Generative Adversarial Network for Target Image Retrieval in Rapid Image Search**  
Ruchi Bagwe and Kiran George (California State University, US)
- **No Classifier Left Behind: An In-depth Study of the RBF SVM Classifier's Vulnerability to Image Extraction Attacks via Confidence Information Exploitation**  
Michael Clark, **Peter Swartz**, Andrew Alten and Raed Salih (Riverside Research, US)
- **Next-Location Prediction using Federated Learning on a Blockchain**  
**Sadaf Md Halim**, Latifur Khan and Bhavani Thuraisingham (University of Texas at Dallas, US)

## TPS Vision Session 4: Security Incident Managements in Cloud Applications

1:00 pm – 3:00 pm

Zoom Link: <https://zoom.us/j/96490404923?pwd=aVZlK3pZVlBrZUN6NktETkVYeXFCZz09>

Session Chair: **Calton Pu, Georgia Institute of Technology, US**

- **Security-aware Energy Management in Clouds**  
Jianzhou Mao, Ting Cao, Xiaopu Peng, Tathagata Bhattacharya, **Wei-Shinn Ku** and Xiao Qin (Auburn University, US)
- **StackVault: Protection from Untrusted Functions**  
**Qi Zhang** (IBM Research, US), Zehra Sura (Bloomberg, US), Ashish Kundu (Graphalgo Inc., US), Arun Iyengar, Gong Su (IBM Research) and Ling Liu (Georgia Institute of Technology, US)
- **Envisioning a Cyber-Security Incident Managed Campus Environment**  
**Sean Thorpe**, Julian Jarrett and Tyrone Grandison (University of Technology, Jamaica)
- **Data Security and Malware Detection in Cloud Storage Services**  
Ting Cao, Jianzhou Mao, Tathagata Bhattacharya, Xiaopu Peng, Wei-Shinn Ku and **Xiao Qin** (Auburn University, US)
- **Toward Automated Enforcement of Cyber-Physical Security Requirements for Energy Delivery Systems**  
**Carlos Rubio-Medrano** (Texas A&M University-Corpus Christi, US), Ziming Zhao (University at Buffalo, US) and Gail-Joon Ahn (Arizona State University, US)



## Coffee Break (15 min)

## Plenary Panel - Industry

3:15 pm – 5:15 pm

Zoom Link: <https://zoom.us/j/94212715627?pwd=T2lCY3BWSVpmYXBZdGxuMVhHUKVUUT09>

## Autonomous Driving, IoT and Cloud: Practical Challenges & Opportunities

Moderator: **Ashish Kundu**, *Graphalgo Inc., US*

Panelists (Last Name Alphabetical)

- **Ashutosh Dutta**, *Johns Hopkins University, US*
- **Christopher Oster**, *Lutron Electronics, US*
- **Gautam Patil**, *Gist Ventures, US*
- **Leon Stenneth**, *HERE Technologies, US*
- **Tao Zhang**, *NIST, US*

## Committee Panel – Best Paper Awards, Next Year Planning

5:20 pm – 6:00 pm

Zoom Link: <https://zoom.us/j/97435194327?pwd=bEdPNXY2MzI4cnRxRjBITE1YMTRoUT09>

Session Chairs: **James Joshi**, *University of Pittsburgh, NSF, US*

### Best Paper Awards

TPS - General Co-Chairs

**Elisa Bertino**, *Purdue University, USA*

**Jaideep Vaidya**, *Rutgers University, USA*

TPS - Program Co-Chairs

**Ravi Sandhu**, *University of Texas, San Antonio, United States*

**Barbara Carminati**, *University of Insubria, Italy*

**Amirreza Masoumzadeh**, *State University of New York at Albany, United States*

CogMI - General Co-Chairs

**Huan Liu**, *Arizona State University, United States*

**Tarek Abdelzaher**, *University of Illinois at Urbana Champaign, United States*

CogMI - Program Co-Chairs

**Paolo Boldi**, *University of Milan, Italy*

**Mudhakar Srivasta**, *IBM Watson, United States*

**Keke Chen**, *Marquette University, United States*

CIC - General Co-Chairs

**Karl Aberer**, *EPFL, Switzerland*

**Panos K. Chrysanthis**, *University of Pittsburgh, US*

CIC - Co-Chairs

**Songqing Chen**, *George Mason University, US*

**Wei-Shinn Ku**, *Auburn University & NSF, US*

**Christin Seifert**, *University of Duisburg-Essen, Germany*