Workshop on Computation: Theory and Practice (WCTP2024)

November 4 - 6, 2024

Henry Sy Hall

University of the Philippines Manila

CONFERENCE PROGRAM

Day 1: November 4, 2024

Opening Session   13:00 - 13:15

National Anthem

- Opening Remarks

    Jaime D. L. Caro (University of the Philippines Diliman)

Session 1: Theoretical Approaches to Computations   13:30 - 14:30

Chair : *Alfonso Labao (University of the Philippines Diliman)*

- Formalizing Reversible Computations for Synchronous Dataflow Languages with Infinite Lists

    Sosuke Moriguchi, Satoshi Takimoto, Mizuki Shirai and Takuo Watanabe

    (*Institute of Science Tokyo*)

- Strong Normalizability of the Simply-Typed Lambda Calculus with Environment Extraction from Function Closures

    Kosuke Kaneshita and Shin-Ya Nishizaki

    (*Institute of Science Tokyo*)

- Still Lifes and Oscillators in the Game of Life on the Hyperbolic Plane

    Jasmin Victoria Pascual, Jeanne Clarisse Toledo and Nestine Hope Hernandez

    (*University of the Philippines Diliman*)

Coffee Break

Session 2 : Computation for Community-based Applications   14:45 - 16:25
Chair : *Nestine Hope Hernandez (University of the Philippines Diliman)*

- Project Privacy: A Correlational Study on Immersion and the Level of Perceived Seriousness
  *Ralf Michael Balatibat, Michael Sean Brian Omisol, Rommel Feria, Ligaya Leah Figueroa
  and Ma. Rowena Solamo*
  (University of the Philippines Diliman)

- Developing a Web-based Tool for Detecting Deceptive Designs in Cookie Banners
  Braullo Jo, Shanea Olino, Rommel Feria, Ligaya Leah Figueroa and Rowena Solamo
  (University of the Philippines Diliman)

- SayawMo: A Recognition Model for Western-Influenced Philippine Folk Dance
  Kermichil Herbieto and Robert Roxas
  (University of the Philippines Cebu)

- VoltCast: A Medium-term Multivariate Forecasting Web App for Electricity Demand, Price,
  and Supply using Deep Learning
  Angelo Malonzo, Perlita Gasmen and John Riz Bagnol
  (University of the Philippines Manila)

- Evaluation and Comparison of GBDT ML Models in Behavior-Based Malware Detection
  *Tustin Annika Choa, Julianne Amor de Veyra, Jose Miguel Escalona, Patrick Ryan Fortiz and
  Jocelynn Cu*
  (De La Salle University)

Session 3 : Practical Approaches to Computations   10:00 - 11:00
Chair : *Jhoirene Clemente (University of the Philippines Diliman)*

- Computing 32-place tables of zeroes and weights for Gauss-Legendre quadrature
  Pablo Manalastas
  (Ateneo de Manila University)

- Formalizing Resource Ownership Semantics of Spinlocks with the Coq Proof Assistant
  Sebastian Luis S. Ortiz, Justin Gabriel R. Enriquez, Henry N. Adorna and Alfonso B. Labao
  (University of the Philippines Diliman)

- Evaluation of Concrete ML for Secure Viral Strain Classification with Homomorphic Encryption
  Johann Benjamin Vivas and Richard Bryann Chua
  (University of the Philippines Manila)

Coffee Break

Session 4 : Computation for Healthcare: Gene Expression and Gene Networks   11:15 - 12:15
Chair : *Jocelynn Cu (De La Salle University)*

- "It's All in Your Head!": Identifying Potential Biomarkers for Bipolar Disorder, Schizophrenia, and Major Depressive Disorder from the Gene Expression Data of Postmortem Human Dorsolateral Prefrontal Cortex
  Jose Marie Cordova, Alex Gonzaga and Joey Mark Diaz
  (University of the Philippines Manila)

- Hierarchical Community Detection on Co-expression Networks for Functional Classification of Cell-Cycle Regulated Genes of Saccharomyces cerevisiae
  Jaimielle Kyle Calderon, Princess Angel Ventures and Jhoirene Clemente
  (University of the Philippines Diliman)

- PythoPharmVis: A Network Analysis tool to Identify Key Entities and Communities for Phytomedicine and Pharmacogenomics
  Emmanuel Ednalan and Geoffrey Solano
  (University of the Philippines Manila)

Invited Talk
Chair: *Jaime D. L. Caro (University of the Philippines Diliman)*

- "An Overview of Digital Transformation at Institute of Science Tokyo and First-Hand Experiences from the Consultation Desk"
  Shin-ya Nishizaki, (Institute of Science Tokyo, Professor)

Coffee Break

Session 5 : Computation for Healthcare : Severity and Survival Prediction   14:45 – 15:45
Chair : *Richard Bryann Chua (University of the Philippines Manila)*

- PredictED: An Explainable ESI Level Classification and Length of Stay Prediction using Machine Learning
  Dhone Matthews Calibuyot and Perlita Gasmen
  (University of the Philippines Manila)

- Machine Learning Classification Models using RNA-seq Gene Expression Data for Early-and Late-Stage Kidney Renal Clear Cell Carcinoma
  Lawrence Macalalad, Geoffrey Solano and Joey Mark Diaz
  (University of the Philippines Manila)

- Machine Learning Classifiers on Predicting the Survival of Pediatric Hematologic Transplant Patients
  Bryan Subingsubing, Danielle Cyrele Azarraga, Marvic Gabriel Ruiz, Ma Sheila Magboo and Vincent Peter Magboo
  (University of the Philippines Manila)

Coffee Break

Session 6 : Computation for Healthcare : Text, Image and Video Classification   16:00 – 17:00
Chair : *Joey Mark Diaz (University of the Philippines Manila)*

- Multilabel Social Support Classification of Filipino-English Endocrinology Facebook
  Comments Using Machine Learning Classification Models
  Romaine Dara Regala, Geoffrey Solano and Iris Thiele Isip-Tan
  (University of the Philippines Manila)

- Image Classification of White Blood Cells Using Convolutional Neural Network
  Juliet Cagampang and Ligaya Leah Figueroa
  (University of the Philippines Diliman)

- ColoSensus: A Spatiotemporal CNN-based Application for Gastrointestinal Disease Classification
  Seth Jared Saluta and Perlita Gasmen
  (University of the Philippines Manila)

Banquet   18:30 – 21:00
- Barbara's Heritage Restaurant
  Plaza San Luis Complex, General Luna St, Intramuros, Manila, 1002 Metro Manila

Day 3: November 6, 2024

Symposium in Health Applications   9:00 - 12:15
Chair : *Iris Thiele Isip-Tan and Geoffrey A. Solano (University of the Philippines Manila)*

• Introduction / Overview

• Presentations and Discussions

- • Large Language Models in Healthcare
  - Healthcare : *Iris Thiele Isip-Tan, MD, MSc (University of the Philippines Manila)*
  - Computing : *Elmer Peramo, MSc (De La Salle University)*

- • Secure Federated Machine Learning for Clinical Decision Support Systems
  - Healthcare : *Lisa Traboco, MD (University of the Philippines Manila)*
  - Computing: *Matthew Sino-Cruz, MSc (University of the Philippines Diliman)*

- • EEG Data Analysis for Brain Studies
  - Healthcare*: Marc Fernandez, MD (University of the Philippines Manila)*
  - Computing : *Jaymar Soriano, PhD (University of the Philippines Diliman)*

Coffee Break

- • Gamifications and Augmentations for Therapy
  - Healthcare : *Maria Eliza Aguila, PhD (University of the Philippines Manila)*
  - Computing : *Jordan Deja, MSc (De La Salle University)*

- • User-responsive Interfaces for Healthcare Applications
  - Healthcare : *Michael Fong, MD (University of the Philippines Manila)*
  - Computing : *Briane Samson, PhD (De La Salle University)*

Lunch   12:15 – 13:30

Invited Talk
Chair: Jaime D. L. Caro *(University of the Philippines Diliman)*

- "From Community Medicine to Personalized Medicine"
  Michael L. Tee, (University of the Philippines Manila, Professor and Chancellor)

Coffee Break   :

Session 7 : Works in Progress   14:45 – 16:05
Chair: *Jaymar Soriano (University of the Philippines Diliman)*

- Constraint Satisfaction Approach to Optimizing Emergency Service Allocation
  Shigeki Hagihara, Jun'Ichi Miki and Yujiro Kawasaki
  (Chitose Institute of Science and Technology)

- Statistical Analysis of Selected Tuberculosis-Related Genes (CARD16, CEACAM1, CR1,
  CREB5, KCNJ15, MAPK14 and NAIP)
  Marco Cristopher Lopez and Joey Mark Diaz
  (University of the Philippines Manila)

- In-Silico Evaluation of Selected Tuberculosis Genes (BATF2, GBP5, and SCARF1) for
  Disease State Classification
  Janno Vergara and Joey Mark Diaz
  (University of the Philippines Manila)

- Non-preemptive SJF Scheduling and the Efficacy of FIFO in Mitigating Starvation
  Krisha Anne Chan, Alfonso Labao, Henry Adorna and Enrico Baratang
  (University of the Philippines Diliman)

Coffee Break

Closing Session   16:20 – 16:35
- Closing Remarks
  Shin-ya Nishizaki *(Institute of Science Tokyo)*