

DAY 0: Dec 11

6:00-7:00 pm Reception/Registration (Barkers Restaurant)

DAY 1: Dec 12

8:30-9:00 Registration

9:00-10:00 Invited Talk 1 (Chair: Seokhee Hong) Blackwattle 2 & 3

- Kunsoo Park: Compressed and Searchable Indexes for Highly Similar Strings

10:00-10:30 Morning Tea

10:30- 11:45 Session 1A: Computational Geometry 1 (Chair: Takeshi Tokuyama) Blackwattle 2

- Eunjin Oh and Hee-Kap Ahn. Assigning Weights to Minimize the Covering Radius in the Plane
- Therese Biedl and Saeed Mehrabi. On r -Guarding Thin Orthogonal Polygons
- Jurek Czyzowicz, Konstantinos Georgiou, Evangelos Kranakis, Danny Krizanc, Lata Narayanan, Jaroslav Opatrny and Sunil Shende. Search on a Line by Byzantine Robots

10:30- 11:45 Session 1B: Approximation Algorithm 1 (Chair: Takehiro Ito) Blackwattle 3

- Yasushi Kawase and Atsushi Miyauchi. The Densest Subgraph Problem with a Convex/Concave Size Function
- Christian Scheffer and Jan Vahrenhold. Approximate Shortest Distances Among Smooth Obstacles in 3D
- Yasushi Kawase, Tomomi Matsui and Atsushi Miyauchi. Additive Approximation Algorithms for Modularity Maximization

11:50-1:30 Lunch (Barkers Restaurant)

1:30-3:10 Session 2A: Combinatorial Optimisation (Chair: Osamu Watanabe) Blackwattle 2

- Yasushi Kawase and Kazuhisa Makino. Surrogate optimization for p -norms
- Shahram Ghandeharizadeh, Sandy Irani and Jenny Lam. The Subset Assignment Problem for Data Placement in Caches
- Yutaro Yamaguchi. Shortest Disjoint S -paths via Weighted Linear Matroid Parity
- Satoko Moriguchi, Kazuo Murota, Akihisa Tamura and Fabio Tardella. Scaling and Proximity Properties of Integrally Convex Functions

1:30-3:10 Session 2B: Data Structure 1 (Chair: Bernard Mans) Blackwattle 3

- Timothy Chan and Dimitrios Skrepetos. All-Pairs Shortest Paths in Unit Disk Graphs in Slightly Subquadratic Time
- Spyros Kontogiannis, Dorothea Wagner and Christos Zaroliagis. Hierarchical Time-Dependent Oracles
- Sankardeep Chakraborty, Venkatesh Raman and Srinivasa Rao Satti. Biconnectivity, chain decomposition and st -numbering using $O(n)$ bits
- Amirali Abdullah, Samira Daruki, Chitradeep Dutta Roy and Suresh Venkatasubramanian. Streaming Verification of Graph Properties

3:10-3:40 Afternoon Tea

3:40-4:55 Session 3A: Graph Algorithm 1 (Chair: Bernard Mans) Blackwattle 2

- Udit Agarwal and Vijaya Ramachandran. Finding k Simple Shortest Paths and Cycles
- Denis Kurz and Petra Mutzel. A Sidetrack-Based Algorithm for Finding the k Shortest Simple Paths in a Directed Graph
- Mingyu Xiao and Hiroshi Nagamochi. A Linear-time Algorithm for Integral Multiterminal Flows in Trees

3:40-4:55 Session 3B: Approximation Algorithm 2 (Chair: Siu-Wing Cheng) Blackwattle 3

- Pankaj Agarwal, Jiangwei Pan and Will Victor. An Efficient Algorithm for Placing Electric Vehicle Charging Stations
- Helmut Alt and Nadja Scharf. Approximating Smallest Containers for Packing Three-dimensional Convex Objects
- Mong-Jen Kao, Hai-Lun Tu and D.T. Lee. $O(f)$ Bi-approximation for Capacitated Covering with Hard Capacities

DAY 2: Dec 13

9:00-10:00 Invited Talk 2 (Chair: Peter Eades) Blackwattle 2 & 3

- Xuemin Lin: Towards Processing of Big Graphs: from Theory, Algorithm to System

10:00-10:30 Morning Tea

10:30- 11:45 Session 4A: Computational Geometry 2 (Chair: Siu-Wing Cheng) Blackwattle 2

- Oswin Aichholzer, Thomas Hackl, Matias Korman, Alexander Pilz, Günter Rote, André van Renssen, Marcel Roeloffzen and Birgit Vogtenhuber. Packing Short Plane Spanning Trees in Complete Geometric Graphs
- Marc Van Kreveld, Maarten Löffler, Lionov Wiratma and Frank Staals. A Refined Definition for Groups of Moving Entities and its Computation
- Amr Elmasry and Frank Kammer. Space-Efficient Plane-Sweep Algorithms

10:30- 11:45 Session 4B: Approximation Algorithm 3 (Chair: Yushi Uno) Blackwattle 3

- T-H. Hubert Chan, Zhihao Gavin Tang and Xiaowei Wu. On $(1, \epsilon)$ -Restricted Max-Min Fair Allocation Problem
- Christopher Martin and Mohammad Salavatipour. Approximation Algorithms for Capacitated k -Travelling Repairmen Problems
- Andreas Emil Feldmann, Jochen Koenemann, Kanstantsin Pashkovich and Laura Sanita. Fast Approximation Algorithms for the Generalized Survivable Network Design Problem

11:50-1:30 Lunch (Barkers Restaurant)

1:30-3:10 Session 5A: FPT Algorithm (Chair: Serge Gaspers) Blackwattle 2

- Hans L. Bodlaender, Hirotaka Ono and Yota Otachi. Degree-Constrained Orientation of Maximum Satisfaction: Graph Classes and Parameterized Complexity
- Akanksha Agrawal, Saket Saurabh, Roohani Sharma and Meirav Zehavi. Kernels for Deletion to Classes of Acyclic Digraphs

- Michael Etscheid and Matthias Mních. Linear Kernels and Linear-Time Algorithms for Finding Large Cuts
- Akanksha Agrawal, Fahad Panolan, Saket Saurabh and Meirav Zehavi. Simultaneous Feedback Edge Set: A Parameterized Perspective

1:30-3:10 Session 5B: Graph Algorithm 2 (Chair: Hsu-Chun Yen) Blackwattle 3

- Patrizio Angelini and Giordano Da Lozzo. Clustered Planarity with Pipes
- Duc Hoang and Ryuhei Uehara. Sliding tokens on a cactus
- Eunjin Oh and Hee-Kap Ahn. A Near-Optimal Algorithm for Finding an Optimal Shortcut of a Tree
- Di Chen and Mordecai Golin. Sink Evacuation on Trees with Dynamic Confluent Flows

3:10-3:40 Afternoon Tea

3:40-4:55 Session 6A: Computational Geometry 3 (Chair: Takeshi Tokuyama) Blackwattle 2

- Ahmad Biniiaz, Prosenjit Bose, Jean-Lou De Carufel, Cyril Gavoille, Anil Maheshwari and Michiel Smid. Towards Plane Spanners of Degree 3
- Shimin Li and Haitao Wang. Dispersing Points on Intervals
- Sang Won Bae. $\$L_1\$$ Geodesic Farthest Neighbors in a Simple Polygon and Related Problems

3:40-4:55 Session 6B: Data Structure 2 (Chair: Rudolf Fleischer) Blackwattle 3

- Qian Li, Xiaoming Sun and Jialin Zhang. On the Optimality of Tape Merge of Two Lists with Similar Size
- Hicham El-Zein, Ian Munro and Matthew Robertson. Raising Permutations to Powers In Place
- Amihood Amir, Tsvi Kopelowitz, Avivit Levy, Seth Pettie, Ely Porat and Riva Shalom. Mind the Gap: Essentially Optimal Algorithms for Online Dictionary Matching with One Gap

6:00-9:00pm Conference Dinner: Dockside, Cockle Bay Wharf, Balcony level (Darling Rooms 1& 2, Quay Rooms 1)

DAY 3: Dec 14

9:00-10:00 Best Paper Award/ISAAC2017 Presentation (Chair: Seokhee Hong) Blackwattle 2& 3

- Yasushi Kawase, Kazuhisa Makino and Kento Seimi. Optimal Composition Ordering Problems for Piecewise Linear Functions
- Lijie Chen. Adaptivity vs Postselection, and Hardness Amplification in Polynomial Approximation
- Takeshi Tokuyama, ISAAC 2017 Presentation

10:00-10:30 Morning Tea

10:30- 11:45 Session 7A: Computational Geometry 4 (Chair: Rudolf Fleischer) Blackwattle 2

- Hung-I Yu, Tien-Ching Lin and D. T. Lee. The $(1|1)$ -Centroid Problem on the Plane Concerning Distance Constraints
- Sándor Fekete, Qian Li, Joseph Mitchell and Christian Scheffer. Universal Guard Problems
- Hugo Akitaya and Csaba Toth. Reconstruction of Weakly Simple Polygons from their Edges

10:30- 11:45 Session 7B: Graph Algorithm 3 (Chair: Takehiro Ito) Blackwattle 3

- Pavel Klavík, Yota Otachi and Jiri Sejnoha. On the Classes of Interval Graphs of Limited Nesting and Count of Lengths
- Nevzat Onur Domanic, Chi-Kit Lam and C. Gregory Plaxton. Bipartite Matching with Linear Edge Weights
- Hoang-Oanh Le and Van Bang Le. On the complexity of Matching Cut in graphs of fixed diameter

11:50-1:30 Lunch (Barkers Restaurant)

1:30-3:10 Session 8A: Computational Complexity (Chair: Serge Gaspers) Blackwattle 2

- Lucy Ham. A Gap Trichotomy for Boolean constraint problems: extending Schaefer's Theorem
- Dmitry Itsykson, Alexander Knop and Dmitry Sokolov. Complexity of distributions and average-case hardness
- Te-Li Wang, Chih-Kuan Yeh and Ho-Lin Chen. An Improved Tax Scheme for Selfish Routing
- Sebastian Berndt and Maciej Liskiewicz. Hard Communication Channels for Steganography

1:30-3:10 Session 8B: Pattern Matching/String Algorithm (Chair: Kunsoo Park) Blackwattle 3

- Tomasz Kociumaka, Solon Pissis and Jakub Radoszewski. Pattern Matching and Consensus Problems on Weighted Sequences and Profiles
- Philip Bille, Patrick Hagge Cording, Inge Li Gørtz, Frederik Rye Skjoldjensen, Hjalte Wedel Vildhøj and Søren Vind. Dynamic Relative Compression, Dynamic Partial Sums, and Substring Concatenation
- Arnab Ganguly, Wing-Kai Hon, Rahul Shah and Sharma V. Thankachan. Space-Time Trade-offs for the Shortest Unique Substring Problem
- Kai Jin. Computing the Pattern Waiting Time: A Revisit of the Intuitive Approach

3:10-3:40 Afternoon Tea

3:40-4:55 Session 9A: Scheduling Algorithm (Chair: Kazuhisa Makino) Blackwattle 2

- Fu-Hong Liu, Hsiang-Hsuan Liu and Prudence W.H. Wong. Optimal Nonpreemptive Scheduling in a Smart Grid Model
- Martin Böhm, Marek Chrobak, Łukasz Jeż, Fei Li, Jiří Sgall and Pavel Veselý. Online Packet Scheduling with Bounded Delay and Lookahead
- Wenchang Luo, Yao Xu, Weitian Tong and Guohui Lin. Single machine scheduling with job-dependent machine deterioration

3:40-4:55 Session 9B: Approximation Algorithm 4 (Chair: Hsu-Chun Yen) Blackwattle 3

- Faisal Abu-Khzam, Cristina Bazgan, Katrin Casel and Henning Fernau. Building Clusters with Lower-bounded Sizes
- Sayan Bandyapadhyay and Kasturi Varadarajan. Approximate Clustering via Metric Partitioning
- Yangwei Liu, Hu Ding, Ziyun Huang and Jinhui Xu. Distributed and Robust Support Vector Machine



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