

2021 IFIP Networking Conference (IFIP Networking 2021)

**Espoo, Finland
21 – 24 June 2021**



**IEEE Catalog Number: CFP21IFI-POD
ISBN: 978-1-6654-4501-6**

**Copyright © 2021, International Federation for Information Processing (IFIP)
All Rights Reserved**

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP21IFI-POD
ISBN (Print-On-Demand):	978-1-6654-4501-6
ISBN (Online):	978-3-9031-7639-3

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

IFIP Networking 2021 - Final Program

Conference Session 1: Network Management (Session Chair: Ioannis Psaras)

Parallel VM Deployment with Provable Guarantees...1

Itamar Cohen (Politecnico di Torino, Italy); Gil Einziger (Ben-Gurion University of The Negev, Israel); Maayan Goldstein and Yaniv Sa'ar (Nokia Bell Labs, Israel); Gabriel Scalosub (Ben-Gurion University of the Negev, Israel); Erez Waisbard (Nokia Bell Labs, Israel)

Towards Large-Scale Deterministic IP Networks...10

Bingyang Liu (Huawei, China); Shoushou Ren (Huawei Technologies Co., Ltd., China); Chuang Wang (Huawei Corporation, China); Vincent Angilella (Huawei Technologies Co. Ltd. & SAMOVAR, Telecom SudParis, France); Paolo Medagliani (Huawei Technologies Co. Ltd., France); Sébastien Martin (Université de Lorraine, France); Jeremie Leguay (Huawei Technologies, France Research Center, France)

All Roads Lead to Rome: An MPTCP-Aware Layer-4 Load Balancer...19

Yijing Zeng (University of Wisconsin-Madison, USA); Milind Buddhikot (Nokia Bell Laboratories, USA); Suman Banerjee (University of Wisconsin, USA)

Conference Session 2: Software Defined Networking (Session Chair: Lin Wang)

ARMHH: Accurate, Rapid and Memory-Efficient Heavy Hitter Detection with Sliding Window in the Software-Defined Network Context...28

Zijun Hang, Yongjie Wang and Shuguang Huang (National University of Defense Technology, China)

INVEST: Flow-Based Traffic Volume Estimation in Data-Plane Programmable Networks...37

Damu Ding (Fondazione Bruno Kessler & University of Bologna, Italy); Marco Savi (University of Milano-Bicocca, Italy); Federico Pederzolli (FBK, Italy); Domenico Siracusa (Fondazione Bruno Kessler, Italy)

MultilayerTuple: A General, Scalable and High-Performance Packet Classification Algorithm for Software Defined Network System...46

Chunyang Zhang (Institute of Computing Technology, Chinese Academy of Sciences, China); Gaogang Xie (CNIC Chinese Academy of Sciences & University of Chinese Academy of Sciences, China)

Conference Session 3: Network Resource Management (Session Chair: Y.C. TAY)

Containers Resource Allocation in Dynamic Cloud Environments...55

Oren Katz and Danny Raz (Technion, Israel); Dror Rawitz (Bar-Ilan University, Israel)

Energy-Efficient and Interference-Aware VNF Placement with Deep Reinforcement Learning...64

Yanyan Mu, Lei Wang and Jin Zhao (Fudan University, China)

Service Function Chain Graph Transformation for Enhanced Resource Efficiency in NFV...73

Angelos Pentelas and Panagiotis Papadimitriou (University of Macedonia, Greece)

Conference Session 4: Network Automation and Scheduling (Session Chair: Faraz Ahmed)

Network Automation for Path Selection: A New Knowledge Transfer Approach...82

Guozhi Lin (School of Cyber Security, University of Chinese Academy of Science & Institute of Information Engineering, Chinese Academy of Science, China); Jingguo Ge (Institute of Information Engineering, Chinese Academy of Sciences, China); Yulei Wu (University of Exeter, United Kingdom (Great Britain)); Hui Li (Institute of Information Engineering, Chinese Academy of Science, China); Tong Li (Institute of Information Engineering, CAS, China); Wei Mi and Yuepeng E (Institute of Information Engineering, Chinese Academy of Science, China)

SRPT-Based Congestion Control for Flows with Unknown Sizes...91

Alex Davydow (Synthesis AI, USA); Sergey I Nikolenko (Harbour Space University, Spain); Vitalii Demianiuk (Ariel University, Israel); Pavel Chuprikov (Università della Svizzera Italiana, Switzerland); Kirill Kogan (Ariel University, Israel)

ECTSA: An Efficient Charging Time Scheduling Algorithm for Wireless Rechargeable UAV Network...100

Mengqi Li (Nanjing University of Aeronautics and Astronautics, China); Liang Liu (Colleage of Computer Science and Technology, Nanjing University of Aeronautics and Astronautics, China); Zuchao Ma, Xiangyu Xu and Lisong Wang (Nanjing University of Aeronautics and Astronautics, China); Jie Xi (China, China)

Conference Session 5: Network Applications (Session Chair: Jun Zhao)

How to Network Delay-Sensitive Applications...109

Pavel Chuprikov (Università della Svizzera Italiana, Switzerland); Kirill Kogan (Ariel University, Israel)

A Zero-Touch Solution for Transport Layer Adaptation to Applications and Networks...118

El-Fadel Bonfoh (LAAS-CNRS of France, France); Samir Medjiah (LAAS-CNRS & Université Paul Sabatier, France); Christophe Chassot (LAAS-CNRS, Université de Toulouse & INSA Toulouse, France)

Noise Measurement and Removal for Data Streaming Algorithms with Network Applications...127

Chaoyi Ma, Haibo Wang, Olufemi Odegbile and Shigang Chen (University of Florida, USA)

Conference Session 6: Network Modeling, Analysis and Measurement (1) (Session Chair: Matthias Wählisch)

TSMF: Network Latency Estimation Using Matrix Factorization and Time Series Forecasting...136

Fotis Savva, Christos Anagnostopoulos and Dimitrios P Pezaros (University of Glasgow, United Kingdom)

(How Much) Can Edge Computing Change Network Latency?...145

Lorenzo Corneo (Uppsala University, Sweden); Nitinder Mohan (Technical University Munich, Germany); Aleksandr Zavodovski (Uppsala University, Finland); Walter Wong (University of Helsinki, Finland); Christian Rohner and Per Gunningberg (Uppsala University, Sweden); Jussi Kangasharju (University of Helsinki, Finland)

Co-Virality of Competing Content over OSNs?...154

Khushboo Agarwal and Veeraruna Kavitha (IIT Bombay, India)

Conference Session 7: Network Modeling, Analysis and Measurement (2) (Session Chair: Sanjib Sur)

On the Complexity of Weight-Dynamic Network Algorithms...163

Monika Henzinger, Ami Paz and Stefan Schmid (University of Vienna, Austria)

From Single Lane to Highways: Analyzing the Adoption of Multipath TCP in the Internet...172

Florian Aschenbrenner (Technical University Munich, Germany); Tanya Shreedhar (Indraprastha Institute of Information Technology (IIIT) Delhi, India); Oliver Gasser (Max Planck Institute for Informatics, Germany); Nitinder Mohan (Technical University Munich, Germany); Jörg Ott (Technische Universität München, Germany)

TeleNoise: A Network-Noise Module for In-Band Real-Time Telemetry...181

Vitalii Demianiuk (Ariel University, Israel); Sergey Gorinsky (IMDEA Networks Institute, Spain); Kirill Kogan (Ariel University, Israel)

Conference Session 8: Network Modeling, Analysis and Measurement (3) (Session Chair: Klaus-Tycho Foerster)

Evaluating Public DNS Services in the Wake of Increasing Centralization of DNS...190

Trinh Viet Doan and Justus Fries (Technical University of Munich, Germany); Vaibhav Bajpai (Technische Universität München, Germany)

Queuing Network Topology Inference Using Passive Measurements...199

Yilei Lin (Pennsylvania State University, USA); Ting He and Guodong Pang (Penn State University, USA)

Investigating Automatic Code Generation for Network Packet Parsing...208

Stephen McQuistin, Vivian Band, Dejice Jacob and Colin Perkins (University of Glasgow, United Kingdom)

Conference Session 9: Network Traffic Analysis (Session Chair: Karin A. Hummel)

Combating Imbalance in Network Traffic Classification Using GAN Based Oversampling...217

Yu Guo, Gang Xiong and Zhen Li (Institute of Information Engineering, Chinese Academy of Sciences, China); Junzheng Shi (Institute of Information Engineering, Chinese Academy of Sciences, China); Mingxin Cui (Institute of Information Engineering, Chinese Academy of Sciences, China); Gaopeng Gou (Institute of Information Engineering, Chinese Academy of Sciences, China)

Distributed Sketching with Traffic-Aware Summaries...226

Dor Harris (Technion, Israel); Arik Rinberg and Ori Rottenstreich (Technion - Israel Institute of Technology, Israel)

Towards Identifying Internet Applications Using Early Classification of Traffic Flow...234

Ashish Gupta (IIT(BHU), India); Hari Prabhat Gupta (Indian Institute of Technology (BHU) Varanasi, INDIA, India); Tania Dutta (IIT (BHU) Varanasi, India)

Conference Session 10: Network Performance Analysis and Optimization (Session Chair: Thomas Schmidt)

Boundaries of Flow Table Usage Reduction Algorithms Based on Elephant Flow Detection...243

Piotr Jurkiewicz (AGH University of Science and Technology, Poland)

Demand-Aware Plane Spanners of Bounded Degree...252

Esra Ceylan, Klaus-Tycho Foerster, Stefan Schmid and Katsiaryna Zaitsava (University of Vienna, Austria)

Estimating Distributions of Large Graphs from Incomplete Sampled Data...261

Shiju Li, Xin Huang and Chul-Ho Lee (Florida Institute of Technology, USA)

Conference Session 11: Network Resilience and Security (Session Chair: Andreas Mauthe)

SIP Bruteforcing in the Wild - an Assessment of Adversaries, Techniques and Tools...270

Harm Griffioen, Huancheng Hu and Christian Doerr (Hasso Plattner Institute, Germany)

Minimizing Effort and Risk with Network Change Deployment Planning...279

Carlos Eduardo de Andrade (AT&T labs Research, USA); Ajay A Mahimkar and Rakesh K Sinha (AT&T Labs - Research, USA); Weiyi Zhang (AT&T Research, USA); Andre Cire (University of Toronto, USA); Giritharan Rana (AT&T Research, USA); Zihui Ge (AT&T Labs - Research, USA); Sarat Puthenpura (AT&T Labs Research, USA); Jennifer Yates (AT&T Labs - Research, USA); Robert Riding (AT&T, USA)

Estimating the Impact of BGP Prefix Hijacking...288

Pavlos Sermpezis (Aristotle University of Thessaloniki, Greece); Vasileios Kotronis and Konstantinos Arakadakis (FORTH, Greece); Athena Vakali (Aristotle University of Thessaloniki, Greece)

Conference Session 12: Network Security and Privacy (Session Chair: Prof. Dr. Burkhard Stiller)

Onion Pass: Token-Based Denial-Of-Service Protection for Tor Onion Services...298

Christoph Döpmann and Valentin Franck (Technische Universität Berlin, Germany); Florian Tschorisch (Technical University of Berlin, Germany)

Few-Shot Class-Adaptive Anomaly Detection with Model-Agnostic Meta-Learning...307

Tongtong Feng, Qi Qi and Jingyu Wang (Beijing University of Posts and Telecommunications, China); Jianxin Liao (Beijing University of Posts and Telecommunications, Taiwan)

LightPIR: Privacy-Preserving Route Discovery for Payment Channel Networks...316

Krzysztof Pietrzak (IST Austria, Austria); Iosif Salem and Stefan Schmid (University of Vienna, Austria); Michelle Yeo (IST Austria, Austria)

Conference Session 13: Machine Learning and Networking (Session Chair: Zhicheng Yang)

Source Selection in Transfer Learning for Improved Service Performance Predictions...325

Hannes Larsson, Jalil Taghia, Farnaz Moradi and Andreas Johnsson (Ericsson Research, Sweden)

Real-Time Channel Management in WLANs: Deep Reinforcement Learning Versus Heuristics...334

Ovidiu Iacoboaeia (Huawei Technologies, France); Jonatan Krolkowski and Zied Ben Houidi (Huawei Technologies Co. Ltd, France); Dario Rossi (Huawei Technologies, France)

Deadline-Aware TDMA Scheduling for Multihop Networks Using Reinforcement Learning...343

Shanti Chilukuri (University College Cork, Ireland); Guangyuan Piao (Maynooth University, Ireland); Diego Lugones (NOKIA Bell Labs, Ireland); Dirk Pesch (University College Cork, Ireland)

Conference Session 14: Decentralization (Session Chair: Rute C. Sofia)

Adaptive Semi-Persistent Scheduling for Enhanced On-Road Safety in Decentralized V2X Networks...352

Avik Dayal (Virginia Tech, USA); Vijay K. Shah (Virginia Tech & Wireless@VT Lab, USA); Biplav Choudhury (Virginia Tech, USA); Vuk Marojevic (Mississippi State University, USA); Carl B. Dietrich (Virginia Tech & Wireless @ Virginia Tech, USA); Jeffrey Reed (Virginia Tech, USA)

DC-PoET: Proof-Of-Elapsed-Time Consensus with Distributed Coordination for Blockchain Networks...361

Amitangshu Pal and Krishna Kant (Temple University, USA)

Poster Session 1

ASIMOV: A Fully Passive WiFi Device Tracking...370

Rafael H Ribeiro, Bruno Rodrigues, Christian Killer and Lenz Baumann (University of Zurich, Switzerland); Muriel F. Franco (University of Zurich & Communication Systems Group CSG, Switzerland); Eder John Scheid and Burkhard Stiller (University of Zürich, Switzerland)

DDoSGrid: A Platform for the Post-Mortem Analysis and Visualization of DDoS Attacks...373

Muriel F. Franco (University of Zurich & Communication Systems Group CSG, Switzerland); Jan von der Assen, Luc Boillat, Christian Killer and Bruno Rodrigues (University of Zurich, Switzerland); Eder John Scheid (University of Zürich, Switzerland); Lisandro Z Granville (Federal University of Rio Grande do Sul, Brazil); Burkhard Stiller(University of Zürich, Switzerland)

Understanding Human Mobility During COVID-19 Using Cellular Network Traffic...376

Necati A Ayan (Binghamton University, USA); Nilson Damasceno (Institute of Computing, Fluminense Federal University, Brazil); Sushil Chaskar (Binghamton University, USA); Peron Sousa (Fluminense Federal University, Brazil); Arti Ramesh and Anand Seetharam (SUNY Binghamton, USA); Antonio A Rocha (Fluminense Federal University, Brazil)

COVID-19 Case Prediction Using Cellular Network Traffic...379

Necati A Ayan and Sushil Chaskar (Binghamton University, USA); Anand Seetharam and Arti Ramesh (SUNY Binghamton, USA); Antonio A Rocha (Fluminense Federal University, Brazil)

Network Performance Upgrade by Cut Spanners...382

Guy Rozenberg and Michael Segal (Ben-Gurion University of the Negev, Israel)

A State Consistency Framework Leveraging Packet Cloning and Piggybacking for Programmable Network Data Planes...385

Hugo Garcia (LASIGE/FCUL, Portugal); Naercio Magaia (University of Lisbon, Portugal)

HTMT: High-Throughput Multipath Tunnelling for Asymmetric Paths...388

Richard Sailer (Universität Augsburg, Germany); Jörg Hähner (University of Augsburg, Germany)

Resource Allocation Method for Network Slicing Using Constrained Reinforcement Learning...391

Yongshuai Liu (University of California, Davis, USA); Jiaxin Ding (Shanghai Jiao Tong University, China); Xin Liu(University of California Davis, USA)

It's Good to Relax: Fast Profit Approximation for Virtual Networks with Latency Constraints...394

Robin Münk (TU München, Germany); Matthias Rost (TU Berlin, Germany); Stefan Schmid (University of Vienna, Austria); Harald Raecke (TU Munich, Germany)

Poster Session 2

CacheNet: Leveraging the Principle of Locality in Reconfigurable Network Design...397

Chen Griner and Chen Avin (Ben-Gurion University of the Negev, Israel) Abstracting

Abstracting Networks with Measurable Guarantees...400

Vitalii Demianiuk and Kirill Kogan (Ariel University, Israel); Antonio Fernández Anta (IMDEA Networks Institute, Spain)

<SmartTE: Partially Deployed Segment Routing for Smart Traffic Engineering with Deep Reinforcement Learning>...403

Zeyu Luan (Tsinghua University, China); Qing Li (Southern University of Science and Technology, China); Yong Jiang (Graduate School at Shenzhen, Tsinghua University, China)

Temporal Graph Based Energy-Limited Max-Flow Routing over Satellite Networks...406

Keyi Shi, Hongyan Li and Long Suo (Xidian University, China)

Multipath Extensions for WireGuard...409

Konrad-Felix Krentz and Marius Corici (Fraunhofer FOKUS, Germany)

eID in Europe - Password Authentication Revisited...412

Miroslaw Kutylowski (Wroclaw University of Technology, Poland); Przemysław Kubiak and Patryk Koziel (Wrocław University of Science and Technology, Poland); Yanmei Cao (Xidian University, China)

Blockchain Based Mobile Crowd Sensing for Reliable Data Sharing in IoT Systems...415

Zhenni Feng and Junchang Chen (Donghua University, China)

Poster: Automated Neural Network Structure Selection for IoT Botnet Detection...418

Muhammad Naveed (The University of New South Wales, Australia); Hui Wu (University of New South Wales, Australia)

Robustness of AutoML for Time Series Forecasting in Sensor Networks...421

Tuomas Halvari, Jukka K Nurminen and Tommi Mikkonen (University of Helsinki, Finland)

Demo Session

Network Slicing with Multi-Topology Routing...424

Nicolas Huin (Huawei Technologies, France); Sébastien Martin (Université de Lorraine, France); Jeremie Leguay (Huawei Technologies, France Research Center, France); Sheng-Ming Cai (Huawei Technologies Co., Ltd., China)

Implementation of Virtual Network Function Allocation with Diversity and Redundancy in Kubernetes...426

Rui Kang, Mengfei Zhu, Fujun He and Eiji Oki (Kyoto University, Japan)

Applying 5G and Edge Processing in Smart Manufacturing...428

Jari Montonen (VTT, Technical Research Center of Finland, Finland); Jukka Koskinen and Jukka Mäkelä (VTT Technical Research Centre of Finland Ltd, Finland); Sami Ruponen (VTT Technical Research Centre of Finland, Finland); Tapio Heikkilä (Technical Research Centre of Finland, Finland); Markku Hentula (VTT Technical Research Centre of Finland Ltd, Finland)

Two-Level Processing Scheme for 3D-Image Sensing Network...430

Chongyu Li, Ryoichi Shinkuma, Takehiro Sato and Eiji Oki (Kyoto University, Japan)

TENSOR - Technical Session 1: Deterministic Networking 1 (Chair: Kostas Katsalis, DoCoMo)

Leveraging Flexibility of Time-Sensitive Networks for Dynamic Reconfigurability...432

Christoph Gärtner (Technical University of Darmstadt, Germany); Amr Rizk (University of Duisburg-Essen, Germany); Boris Koldehofe (University of Groningen, The Netherlands); Rhaban Hark (Technische Universität Darmstadt, Germany); Rene Guillaume (Robert Bosch GmbH, Germany); Ralf Steinmetz (Technische Universität Darmstadt, Germany)

Dynamic Real-Time Stream Reservation with TAS and Shared Time Windows...438

Alexej Grigorjew and Nicholas Gray (University of Wuerzburg, Germany); Tobias Hoßfeld (University of Würzburg, Germany)

Priority Re-Assignment for Improving Schedulability and Mixed-Criticality of ARINC 664...444

Metin Yeniaydin (Yildiz Technical University & Turkish Aerospace Industries Inc., Turkey); Ömer Faruk Gemici (TÜBİTAK BİLGEM & İstanbul Teknik Üniversitesi, Turkey); M. Selim Demir (Özyegin

University & Tübitak Bilgem, Turkey); Ibrahim Hokelek (TUBITAK BILGEM, Turkey); Sinem Coleri (Koc University, Turkey); Ufuk Tureli (Yıldız Technical University, Turkey)

TENSOR - Technical Session 2: P4 and Network Monitoring (Chair: Amr Rizk)

Performance Study of P4 Programmable Devices: Flow Scalability and Rule Update Responsiveness...450

Hasanin Harkous (Technical University of Munich & Nokia Bell Labs, Germany); Mu He (Nokia Bell Labs, Germany); Michael Jarschel (Nokia, Germany); Rastin Pries (Nokia Bell Labs, Germany); Ehab Mansour and Wolfgang Kellerer (Technische Universität München, Germany)

Hotcount: A High-Precision Traffic Statistics for Multi-Tenants...456

GuanJie Qiao (China, China); Lv GaoFeng and Jing Tan (National University of Defense Technology, China); Lusha Mo (NUDT, China)

Network Telemetry by Observing and Recording on Programmable Data Plane...462

Wen-Hong Lin, Wai-Xi Liu, Gui-Feng Chen, Song Wu, Jin-Jiang Fu, Xing Liang, Sen Ling and Zhi-Tao Chen (Guangzhou University, China)

TENSOR - Technical Session 3: Deterministic Networking 2 (Chair: Panagiotis Papadimitriou, University of Macedonia)

FlowToss: Fast Wait-Free Scheduling of Deterministic Flows in Time Synchronized Networks...468

Randeep Bhatia and T. V Lakshman (Bell Labs, Nokia, USA); Mustafa F. Ozkoc (New York University, USA); Shivendra Panwar (New York University & Tandon School of Engineering, USA)

Simulation Framework for EtherCAT over TSN...474

Balakrishna Balakrishna (Fraunhofer FOKUS Berlin, Germany); Boris Meinardus and Leonidas Kontopoulos (Technical University of Berlin, Germany)

Simulative Evaluation of the TSN Mechanisms Time-Aware Shaper and Frame Preemption and Their Suitability for Industrial Use Cases...480

Anna Arrestova and Kai-Steffen Hielscher (University of Erlangen-Nürnberg, Germany); Reinhard German (University of Erlangen, Germany)

DI2F - Session 1: Protocol and Architecture Extensions

VPN-Zero: A Privacy-Preserving Decentralized Virtual Private Network...486

Matteo Varvello (Nokia Bell Labs, USA), Iñigo Querejeta (UC3M, Spain), Antonio Nappa (UC Berkeley, USA & UC3M, Spain), Panagiotis Papadopoulos (Telefonica Research, Spain), Gonçalo Pestana (Brave Software, UK), Benjamin Livshits (Brave Software, UK)

KadRTT: Routing with Network Proximity and Uniform ID Arrangement in Kademlia...492

Hidehiro Kanemitsu (University of Tokyo, Japan), Hidenori Nakazato (Waseda University, Japan)

Pulsarcast: Scalable, Reliable Pub-Sub over P2P Nets...498

João Antunes (U. Lisboa, Portugal), David Dias (Protocol Labs), Luís Veiga (U. Lisboa, Portugal)

IPFS-FAN: A Function-Addressable Computation Network...504

Alfonso de la Rocha (Protocol Labs), Yiannis Psaras (Protocol Labs), David Dias (Protocol Labs)

DI2F - Session 2: Demos and Abstracts

(Abstract) Fully Decentralized Trading Games with Evolvable Characters Using NFTs and IPFS...510

Christos Karapapas (AUEB, Greece), Iakovos Pittaras (AUEB, Greece), George C. Polyzos (AUEB, Greece)

(Abstract) The Case for AI Based Web3 Reputation Systems...512

Navin V Keizer (UCL, UK), Fan Yang (UCL, UK), Yiannis Psaras (Protocol Labs), George Pavlou (UCL, UK)

(Demo) Introducing Peer Copy - A Fully Decentralized Peer-To-Peer File Transfer Tool...514

Dennis Trautwein (U. Wuppertal, Germany), Moritz Schubotz (FIZ- Karlsruhe, Germany), Bela Gipp (U. Wuppertal, Germany)

DI2F - Session 3: Decentralised Identity and Web3.0 Services

Enabling Self-Verifiable Mutable Content Items in IPFS Using Decentralized Identifiers...516

Nikos Fotiou (AUEB, Greece), Vasilios A. Siris (AUEB, Greece), George C. Polyzos (AUEB, Greece)

Decentralized Identifiers for Peer-To-Peer Service Discovery...522

Carson Farmer (Textile, US), Sander Pick (Textile, US), Andrew Hill (Textile, US)

Solid over the Interplanetary File System...528

Fabrizio Parrillo (U. Basel, Switzerland), Christian F Tschudin (U. Basel, Switzerland)

IPLS: A Framework for Decentralized Federated Learning...534

Christodoulos Pappas (U. Thessaly, Greece), Dimitris Chatzopoulos (HKUST, Hong Kong), Spyros Lalidis (U. Thessaly, Greece), Manolis Vavalis (U. Thessaly, Greece)