

Aleksey Charapko

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RESEARCH INTERESTS

- Distributed systems, Distributed databases, Distributed monitoring & debugging, Coordination, Fault tolerance, Scalability.

EDUCATION

- **Doctor of Philosophy**, Computer Science, In Progress
“*Consensus End-to-End: Design, Implementation, and Evaluation of Consensus Protocols*”
Advisor: Dr. Murat Demirbas
University at Buffalo, SUNY, Buffalo, New York
- **Master of Science**, Computer Science, 2015
“*Time Series Similarity Search in Distributed Key-Value Data Stores Using R-trees*”
Advisor: Dr. Ching-Hua Chuan
University of North Florida, Jacksonville, Florida
- **Bachelor of Science**, Computer Science, 2015
University of North Florida, Jacksonville, Florida

EXPERIENCE

- **Graduate Research Assistant**, University at Buffalo, 2016 - Present
Research Assistant for the project: “*Synchrony-aware Primitives for Building Highly Auditable, Highly Scalable, Highly Available Distributed Systems*”
- **Graduate Teaching Assistant**, University at Buffalo, 2015 - 2016
 - Teaching Assistant for CSE565 “Computer Security”
Graded student work including exams and quizzes. Hold office hours.
 - Teaching Assistant for CSE341 “Computer Organization”
Taught recitation sessions for the class. Graded student work including exams and quizzes. Hold office hours.
- **Graduate Research Assistant**, University of North Florida, 2012 - 2015
Helped designing and conducting the experiments
Supervised and administered data collection done by the experts in the musical field.

PUBLICATIONS

- **Journal Papers**
 1. *WPaxos: Wide Area Network Flexible Consensus*
Ailijiang A., **Charapko A.**, Demirbas M., Kosar T. Accepted to *IEEE Transactions on Parallel and Distributed Systems*, 2019.
 2. *Retroscope: Retrospective Monitoring of Distributed Systems*
Charapko A., Ailijiang A., Kulkarni S., Demirbas M. Accepted to *IEEE Transactions on Parallel and Distributed Systems*, 2019.
 3. *Indexing Musical Sequences in Large Datasets Using Relational Databases*
Charapko, A., and Chuan. C.-H. *International Journal of Multimedia Engineering and Management*, 6(2), pp. 1 - 18, 2015.
 4. *Predicting Key Recognition Difficulty in Music Using Statistical Learning*
Chuan, C.-H., and **Charapko, A.** *International Journal of Multimedia Engineering and Management*, 5(2), pp. 54 - 69, 2014.

- **Conference and Workshop Papers**

1. *Linearizable Quorum Reads in Paxos*
Charapko A., Ailijiang A., Demirbas M. *USENIX Workshop on Hot Topics in Storage and File Systems (HotStorage '19)*, 2019
2. *Dissecting the Performance of Strongly-Consistent Replication Protocols*
Ailijiang A., **Charapko A.**, Demirbas M. *SIGMOD*, 2019
3. *Adapting to Access Locality via Live Data Migration in Globally Distributed Datastores*
Charapko A., Ailijiang A., Demirbas M. *IEEE International Conference on BigData 2018*, pp. 3320 - 3329, 2018.
4. *Using Weaker Consistency Models with Monitoring and Recovery for Improving Performance of Key-Value Stores*
Nguyen D., **Charapko A.**, Kulkarni S., Demirbas M. *Latin-American Symposium on Dependable Computing (LADC)*, 2018.
5. *Bridging Paxos and Blockchain Consensus*
Charapko A., Ailijiang A., Demirbas M. *IEEE Blockchain 2018*, 2018.
6. *Lightweight, Incremental, and Retrospective Distributed Snapshots Using Loosely Synchronized Clocks*
Charapko A., Ailijiang A., Kulkarni S., Demirbas M. *The 37th International Conference on Distributed Computing Systems (ICDCS)*, pp. 2061 - 2066, 2017.
7. *WANKEEPER: Efficient Coordination at WAN scale*
Ailijiang A., **Charapko A.**, Demirbas M., Turkkan B., Kosar T. *The 37th International Conference on Distributed Computing Systems (ICDCS)*, pp. 1575 - 1585, 2017.
8. *Consensus in the Cloud: Paxos Systems Demystified*
Ailijiang A., **Charapko A.**, Demirbas M. *The 25th International Conference on Computer Communication and Networks (ICCCN)*, pp. 1 - 10, 2016.
9. *Indexing and Retrieving Continuations in Musical Time Series Data Using Relational Databases*
Charapko, A., and Chuan. C.-H. *IEEE International Symposium on Multimedia*, pp. 341 - 346, 2014.
10. *Predicting Key Recognition Difficulty in Polyphonic Audio*
Chuan, C.-H., and **Charapko, A.** *IEEE International Symposium on Multimedia*, pp. 421 - 426, 2013.

- **Under Submission**

1. *Benchmarking Distributed Coordination Systems: A Survey and Analysis*
Turkkan B., Kosar T., **Charapko A.**, Ailijiang A., Demirbas M.

- **Technical Reports**

1. *FleetDB: Follow-the-workload Data Migration for Globe-Spanning Databases*
Charapko A., Ailijiang A., Demirbas M.
2. *Does the Cloud Need Stabilizing?*
Demirbas M., **Charapko A.**, Ailijiang A.
<https://arxiv.org/pdf/1806.03210>

PRESENTATIONS

- IEEE International Conference on BigData
Seattle, Washington, December 2018.
Workshop paper presentation: *Adapting to Access Locality via Live Data Migration in Globally Distributed Datastores*
- The 37th International Conference on Distributed Computing Systems (ICDCS)
Atlanta, Georgia, June 2017.
Conference paper presentation: *Lightweight, Incremental, and Retrospective Distributed Snapshots Using Loosely Synchronized Clocks*
- Seminar on Current Trends in Computing Technology
University of North Florida, Jacksonville, FL, February 2017.
Invited presentation: *Lightweight, Incremental, and Retrospective Distributed Snapshots Using Loosely Synchronized Clocks*
- 4th annual College of Computing, Engineering and Construction (CCEC) Dean's Leadership Council Showcase
University of North Florida, Jacksonville, FL, April 2015.
Invited presentation: *Mobile Applications for gFPS and eDHR2*
- The 9th IEEE International Workshop on Multimedia Information Processing and Retrieval, Anaheim, USA, December 2013.
Conference paper presentation: *Predicting Key Recognition Difficulty in Polyphonic Audio*
- CCEC Research Colloquium
School of Computing, University of North Florida, October 2013.
Collaboration in Interdisciplinary Research: Experiences and Challenges
- Florida Undergraduate Research Conference
University of Florida, Gainesville, Florida, USA, February 2013.
Poster presentation: *Optimal Shuttle Routes on Campus*

SCHOLARSHIPS & AWARDS

- SUNY Buffalo Presidential Fellowship, 2015 - 2019
- University of North Florida Presidential Scholarship, 2009 - 2013
- Florida Bright Futures, 2009 - 2015

JOURNAL REVIEWER FOR

- IEEE Transactions on Parallel and Distributed Systems (TPDS)
- Distributed and Parallel Databases

INDUSTRY EXPERIENCE

- **Software Engineer**, Microsoft, April 2019 - Present
- **Visiting Researcher**, Microsoft, July 2018 - March, 2019
- **Independent Consultant**, 2015 - 2019
 - Software engineering consulting and training
 - Ongoing maintenance of existing software systems
- **Applications Developer**, Elyk Innovation, Inc., 2012 - 2015
 - Designed and developed web, mobile and desktop applications for the clients in the medical, financial, construction and retail businesses.
 - Maintained existing software systems.
- **Student Consultant**, Vistakon, division of Johnson & Johnson, Inc., 2014
 - Designed and prototyped mobile versions of the production scheduling and quality control software systems.

TECHNICAL SKILLS

- **Programming Languages:** Java, PHP, C, C++, Go, JavaScript, Python, Scala, C#, Visual Basic, MATLAB, bash.
- **Databases:** Apache Cassandra, Azure Cosmos DB, MySQL/MariaDB, Microsoft SQL Server, HBase
- **Miscellaneous:** TLA+, LaTeX, ZooKeeper, Android, LAMP/WAMP stacks, Linux, HTML.