

Research Methods in computer science

Spring 2017

Lecture 17

Omprakash Gnawali
March 8, 2017

Agenda

HW7 live grading

Research Conference Updates

Guest Lectures

Co-authorship

Level of details

Co-authorship

Green Enterprise Computing Data: Assumptions and Realities

Maria Kazandjieva, Brandon Heller, Omprakash Gnawali *, Philip Levis, and Christos Kozyrakis
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Who did the work?

Contribution levels

Co-author

Acknowledgment

Order of authors

Convention may vary across fields

Sunday, October 9, 2016

7:30 - 8:45

Continental Breakfast - Prefunction (outside Garden State)

Session 1.1a - Regency BC

Session 1.1b - Garden State ABC

9:00 - 9:20

[Bounded-Communication Leakage Resilience via Parity-Resilient Circuits](#)

Vipul Goyal, Yuval Ishai, Hemanta K. Maji, Amit Sahai, Alexander Sherstov, Hemanta Maji

[Strong Fooling Sets for Multi-Player Communication with Applications to Deterministic Estimation of Stream Statistics](#)

Amit Chakrabarti, Sagar Kale

9:25 - 9:45

[Indistinguishability Obfuscation from DDH-like Assumptions on Constant-Degree Graded Encodings](#)

Huijia Lin, Vinod Vaikuntanathan

[Edit Distance: Sketching, Streaming and Document Exchange](#)

Djamal Belazzougui, Qin Zhang

9:50 - 10:10

[Breaking the Three Round Barrier for Non-Malleable Commitments](#)

Vipul Goyal, Dakshita Khurana, Amit Sahai

[Heavy Hitters via Cluster-preserving Clustering](#)

Kasper Green Larsen, Jelani Nelson, Huy L. Nguyen, Mikkel Thorup

10:15 - 10:35

[Zero-knowledge Proof Systems for QMA](#)

Anne Broadbent, Zhengfeng Ji, Fang Song, John Watrous

[Optimal Quantile Approximation in Streams](#)

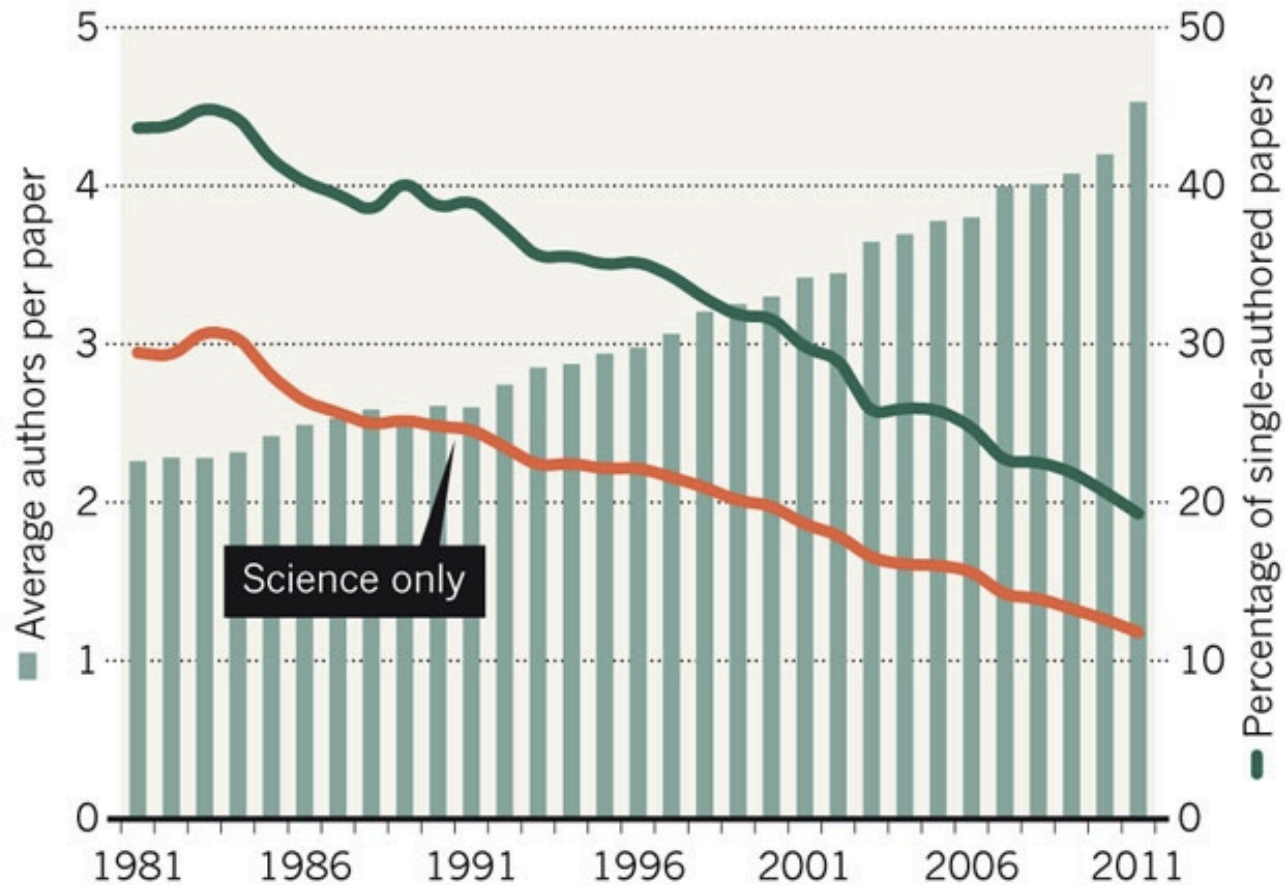
Zohar Karnin, Kevin Lang, Edo Liberty

<http://dimacs.rutgers.edu/FOCS16/Program/schedule.html>

Notice the order of authors

DECLINE OF THE SINGLE AUTHOR

The average number of authors on a research paper rose to 4.5 last year; fewer than one in five were single-authored.



<http://www.nature.com/news/seven-days-3-9-august-2012-1.11139#/trend>

Lots of coauthors...

<http://journals.aps.org/prl/pdf/10.1103/PhysRevLett.114.191803>

<http://www.g3journal.org/content/5/5/719>

ventricular dysfunction as assessed by echocardiography and computed tomography.

The study was designed to address concerns that oral anticoagulants may confer a higher risk of bleeding in high-risk patients with renal impairment and body weight.¹² We identified the optimal daily dose of edoxaban in 50% of patients with these characteristics. The efficacy of edoxaban was maintained with significantly less bleeding than that observed in the

comparative study with the comparator, warfarin. Edoxaban therapy was proactively managed throughout the study. This resulted in the majority of patients being in the therapeutic range of

to standard therapy with warfarin after initial heparin, with significantly less bleeding.

Supported by Daiichi-Sankyo.

Dr. Büller reports receiving consulting fees from Bayer, Boehringer Ingelheim, Bristol-Myers Squibb, Isis Pharmaceuticals, and ThromboGenics, and grant support from Bayer and Pfizer. Dr. Décousus reports receiving fees for board membership from Bayer and Daiichi Sankyo, lecture fees from GlaxoSmithKline, and grant support from Bayer, Bristol-Myers Squibb–Pfizer, Boehringer Ingelheim, and Portola. Drs. Grosso, Mercuri, Schwocho, and Shi report being employees of Daiichi Sankyo. Dr. Middeldorp reports receiving consulting fees from Bayer and Bristol-Myers Squibb–Pfizer, lecture fees from Bayer, GlaxoSmithKline, Bristol-Myers Squibb–Pfizer, and Boehringer Ingelheim, and grant support from GlaxoSmithKline, Bristol-Myers Squibb–Pfizer, and Sanquin. Dr. Prins reports receiving consulting fees from Bayer, Pfizer, and Boehringer Ingelheim, and lecture fees from Bayer. Dr. Raskob reports receiving consulting fees and travel support from Bayer, Bristol-Myers Squibb, Janssen, Johnson & Johnson, Pfizer, Sanofi-

Financial disclosure to understand potential conflict of interest

Authorship credit should be based on 1) substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; 2) drafting the article or revising it critically for important intellectual content; and 3) final approval of the version to be published. Authors should meet conditions 1, 2, and 3.

When a large, multicenter group has conducted the work, the group should identify the individuals who accept direct responsibility for the manuscript. These individuals should fully meet

the criteria for authorship/ contributorship defined above, and editors will ask these individuals to complete journal-specific author and conflict-of-interest disclosure forms. When submitting a manuscript authored by a group, the corresponding author should clearly indicate the preferred citation and identify all individual authors as well as the group name. Journals generally list other members of the group in the Acknowledgments. The NLM indexes the group name and the names of individuals the group has identified as being directly responsible for the manuscript; it also lists the

names of collaborators if they are listed in Acknowledgments.

Acquisition of funding, collection of data, or general supervision of the research group alone does not constitute authorship.

All persons designated as authors should qualify for authorship, and all those who qualify should be listed.

Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content.

Additional Supporting Information may be found in the online version of this article.

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Please indicate each author's contribution(s) to the manuscript, using the numbered list below.

1. Conception and design
2. Provision of study material or patients
3. Collection and/or assembly of data
4. Data analysis and interpretation
5. Manuscript writing
6. Final approval of manuscript
7. Other (financial and administrative support)

Author's Name

Contribution(s) (Use item numbers from above.)

7 Acknowledgments

Many contributed to the Chubby system: Sharon Perl wrote the replication layer on Berkeley DB; Tushar Chandra and Robert Griesemer wrote the replicated database that replaced Berkeley DB; Ramsey Haddad connected the API to Google's file system interface; Dave Presotto, Sean Owen, Doug Zongker and Praveen Tamara wrote the Chubby DNS, Java, and naming protocol-converters, and the full Chubby proxy respectively; Vadim Furman added the caching of open handles and file-absence; Rob Pike, Sean Quinlan and Sanjay Ghemawat gave valuable design advice; and many Google developers uncovered early weaknesses.

Use Acknowledgments
for more than listing
the grants

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Level of Details

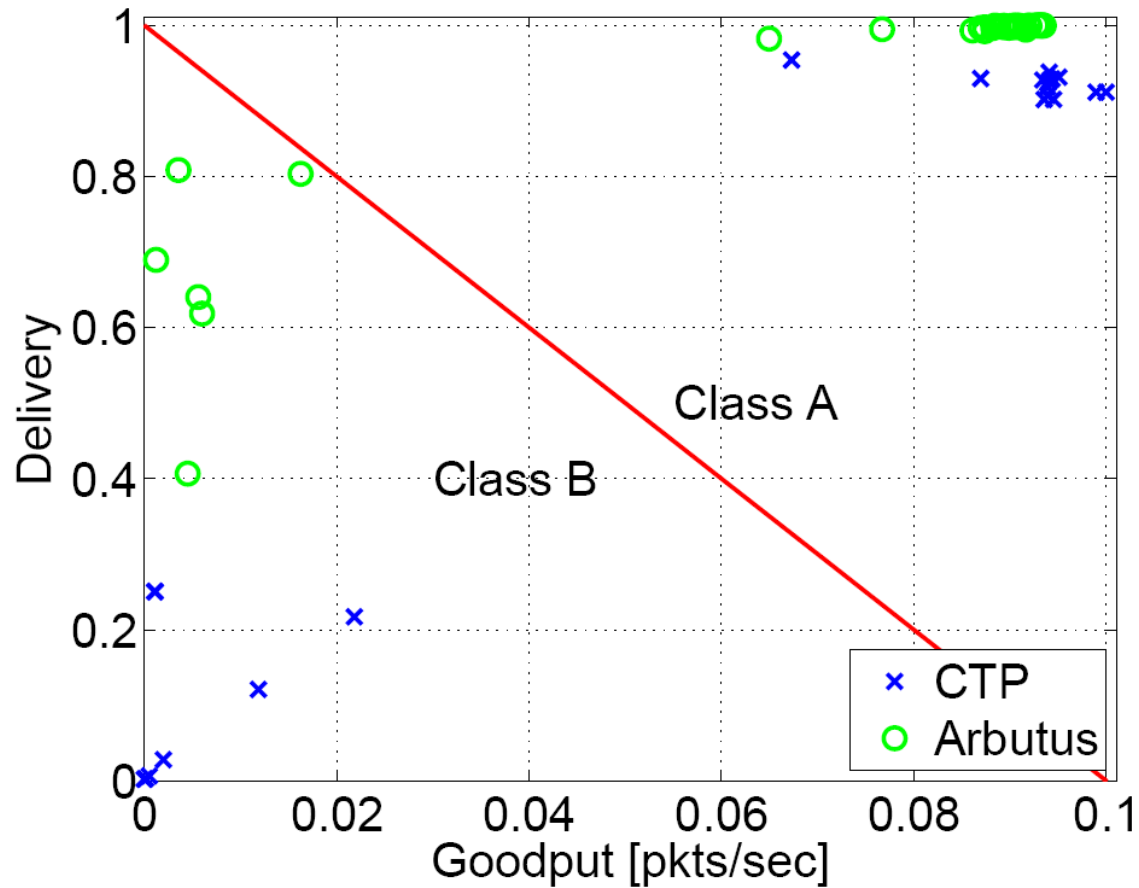
We use all available nodes in every experiment. In some testbeds, this means the set of nodes across experiments is almost but not completely identical, due to backchannel connectivity issues. However, we do not prune problem nodes. In the case of Motelab, this approach greatly affects the computed average performance, as some nodes are barely connected to the rest of the network.

5.1 Methodology

We conducted our experiments on a tiered network testbed with several Stargate nodes and 40 TelosB motes. All nodes are located above the false ceiling across multiple rooms and hallways on a floor of a large office building. The wireless environment above the false ceiling is harsh, with some links experiencing above 30% packet loss rates. All nodes run the Tenet stack modified to support AEM. In most experiments, we use a single Tenet master node. We configured the mote radios to transmit at -8.906 dBm, which results in a tree with 4-hop depth.

Experimental Methodology and Metrics We now compare the performance of Tenet-PEG and mote-PEG. Our experiments are conducted on the testbed shown in Figure 7. This testbed consists of 56 Tmotes and 6 Stargates deployed above the false ceiling of a single floor of a large office building. The Stargate and mote radios are assigned non-interfering channels. This testbed represents a realistic setting for examining network performance as well as for evaluating PEGs. The false ceiling is heavily obstructed, so the wireless communication that we see is representative of harsh environments. The environment is also visually obstructed, and thus resembles say, a building after a disaster, in which a pursuit-evasion sensor network might aid the robotic search for survivors.

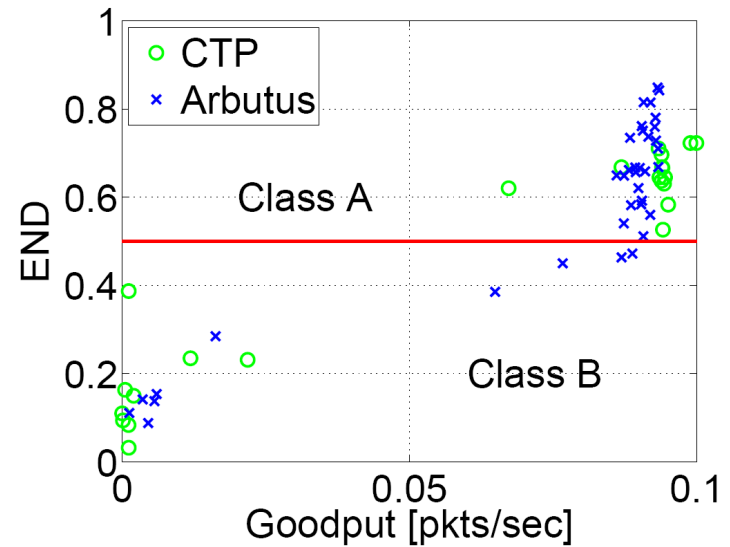
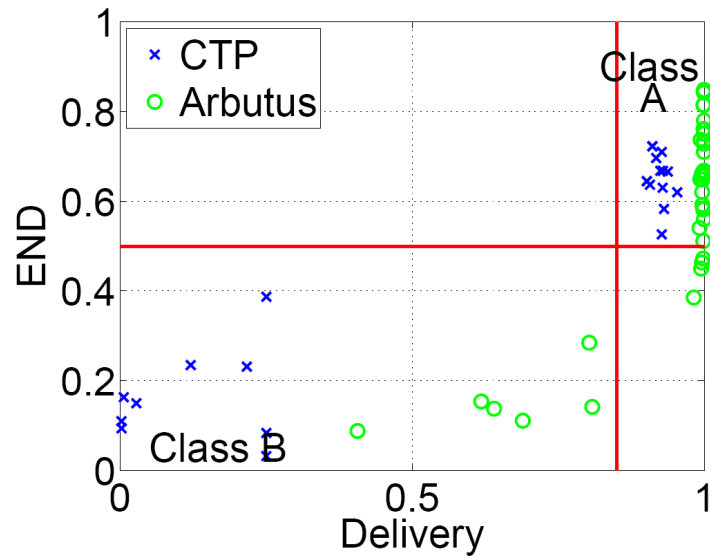
Results from the same Testbed



Network Metric

Converting these subjective descriptions
to a more quantitative description

END and CTP Performance



DeepFace: Closing the Gap to Human-Level Performance in Face Verification

[Taigman 2014]

The SFC dataset includes 4.4 million labeled faces from 4,030 people each with 800 to 1200 faces, where the most recent 5% of face images of each identity are left out for testing. This is done according to the images' time-stamp in order to simulate continuous identification through aging. The large number of images per person provides a unique opportunity for learning the invariance needed for the core problem of face recognition...

“See the supplementary material for more details about SFC.”

Supplementary Material:
DeepFace: Closing the Gap to Human-Level Performance in Face Verification

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“We evaluate the throughput and delay benefits of CQIC using the Google Nexus device to download content from a Google server via a popular cellular network provider. Reflecting a common CDN scenario, this server is located near the network of the mobile carrier such that the cellular channel is the bottleneck link...”

[Lu 2015]

HW8 –Introduction Patterns

1. For each of the ten papers that you have identified as related to your research, write down the question the author is trying to answer in each paragraph.
2. Do interesting statistics and visualization to describe how introductions are written in your sub-discipline or research area based on the data you collected in part1.