Contributed article

Trends in Computer Science Research

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Introduction

20 TECH TRENDS FOR 2013

www.frogdesign.com

GET MORE PHYSICAL

MATTEO PENZO
TECHNOLOGY DIRECTOR, MILAN

In 2013, the combination of 20-nanometer processors (ARM, Intel, and Apple are planning launches for Q2/Q3) and 4G Networks becoming available in most countries will alter how we use our smart phones.

arch field.

d increased over

l research in most

HUMAN-COMPUTER INTERACTION GETS MORE HUMANISTIC

MARK ROLSTON
CHIEF CREATIVE OFFICER, AUSTIN

WE LOSE CONTROL OF OUR CARS

KATIE DILL
CREATIVE DIRECTOR, SAN FRANCISCO

Our cars are becoming ever more automated. They are parallel parking themselves, monitoring our speed while in cruise control, and now

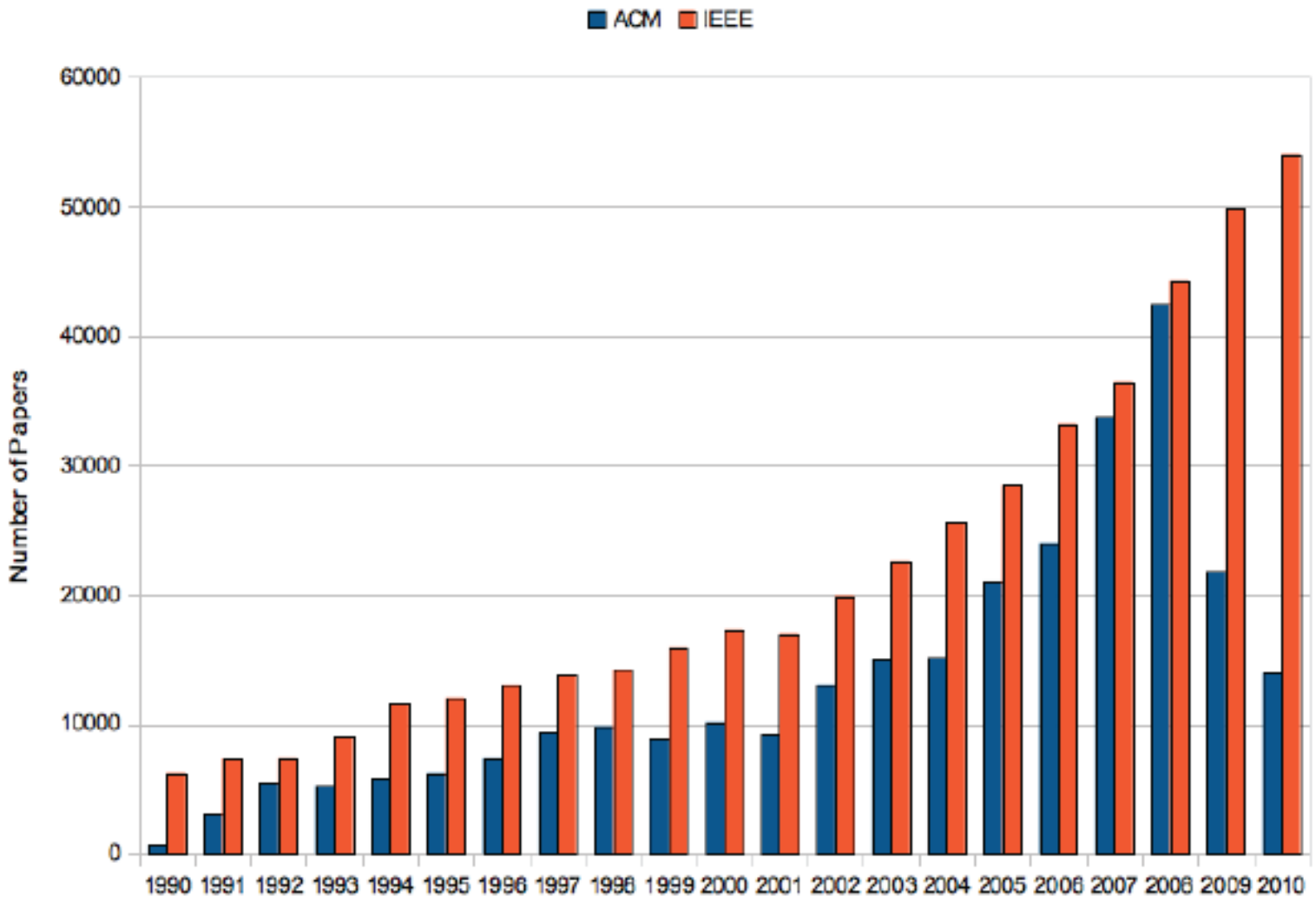
Analysis

Datasets: Collected from 1990 - 2010

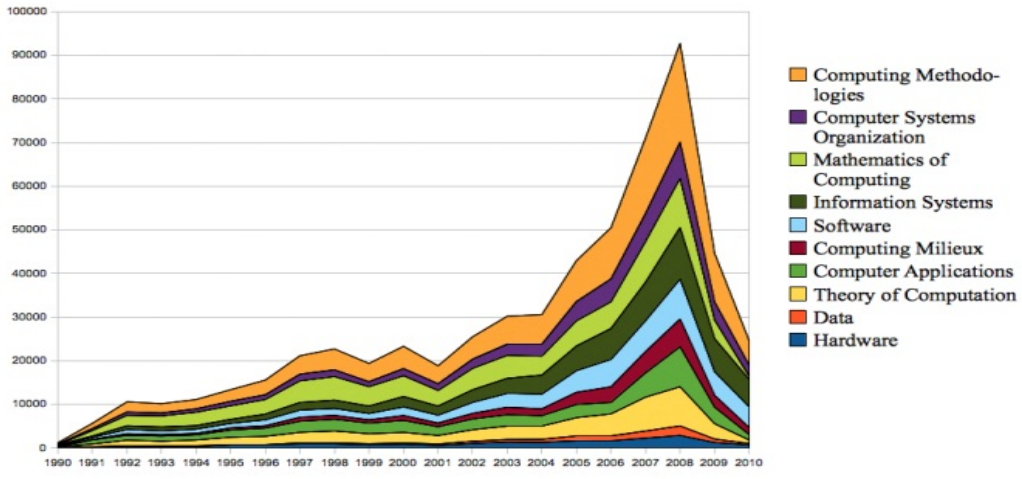
- ACM Dataset: ACM Digital Library
- IEEE Dataset: IEEE Xplore Digital Library
- NSF Dataset: Publicly available awarded grants from www.nsf.gov

Analysis

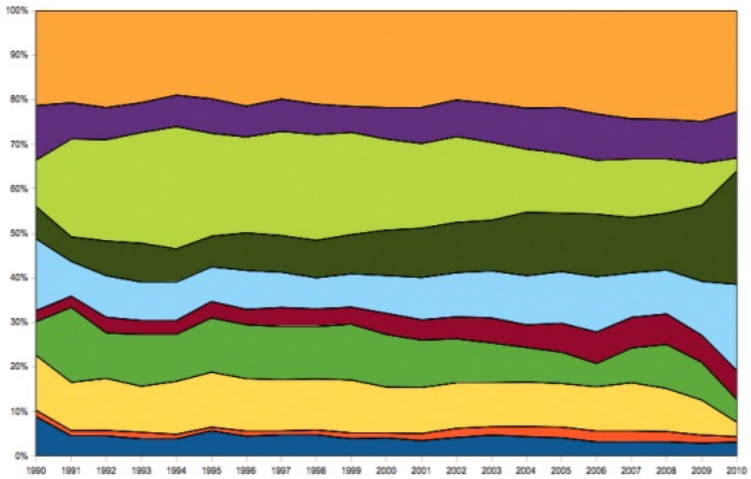
Datasets Sizes



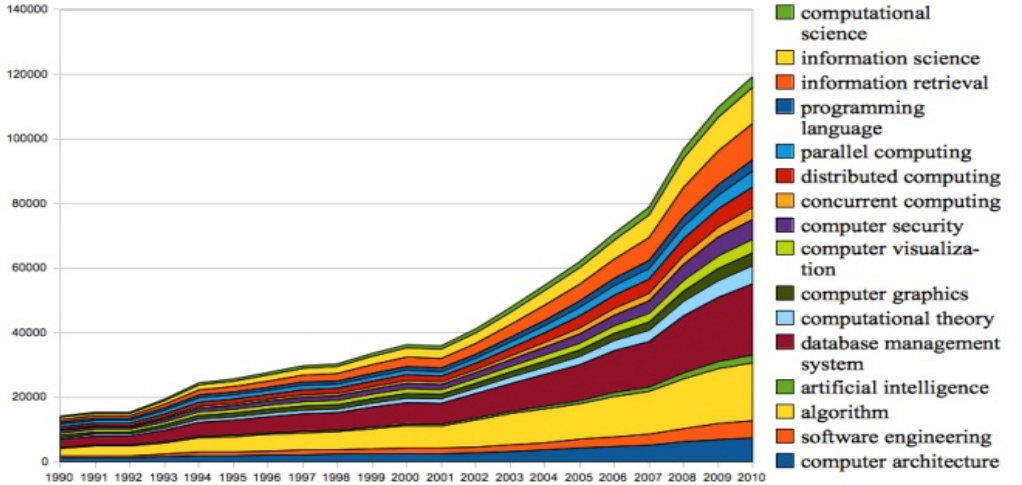
Landscapes of Computer Science research



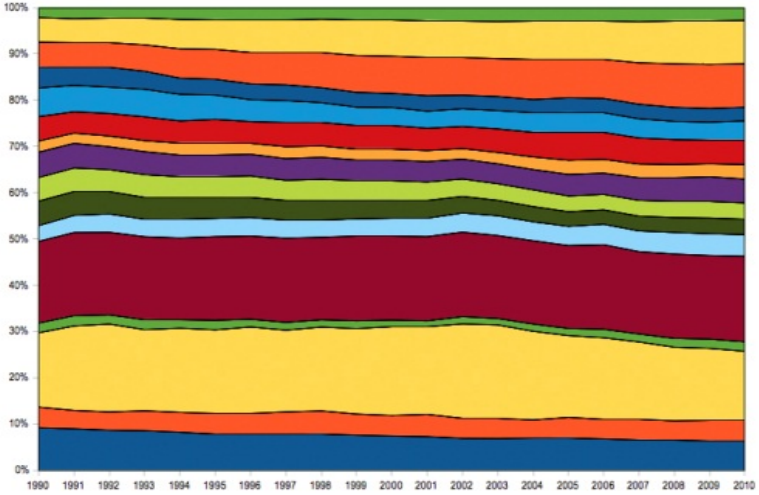
(a) ACM: Frequency



(b) ACM: Fraction

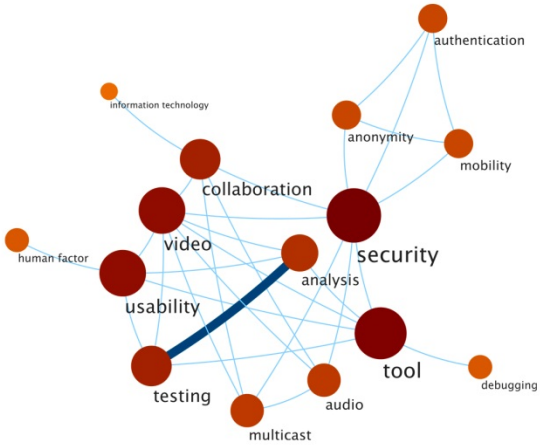


(c) IEEE: Frequency

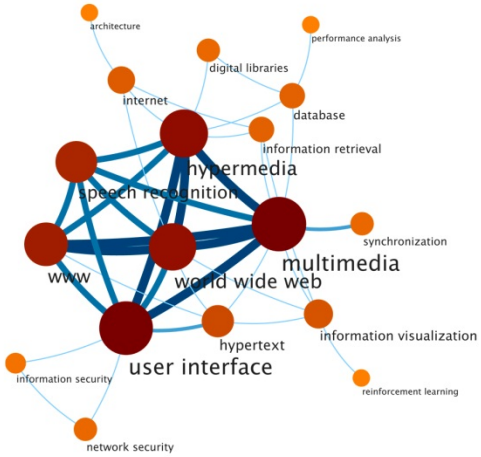


(d) IEEE: Fraction

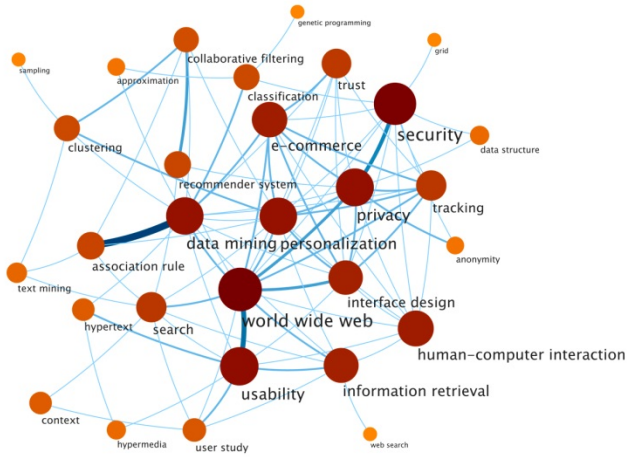
Networks of Computer Science Research



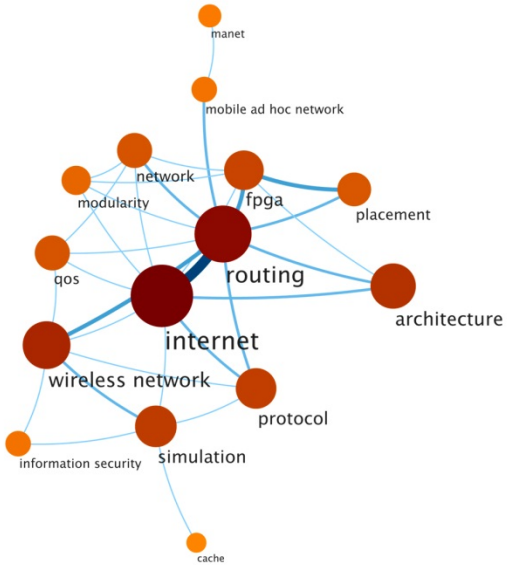
(a) Security Cluster: 1995



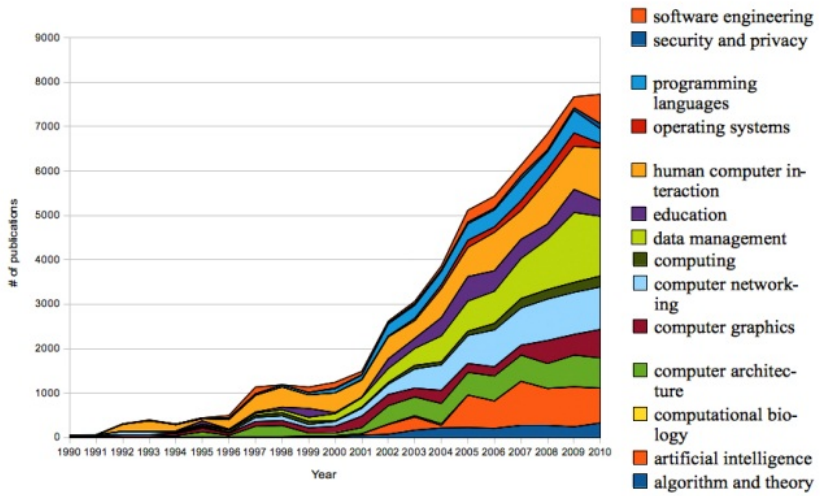
(b) Multimedia Cluster: 1995



(c) World Wide Web Cluster: 2001



d) Internet Cluster: 2001



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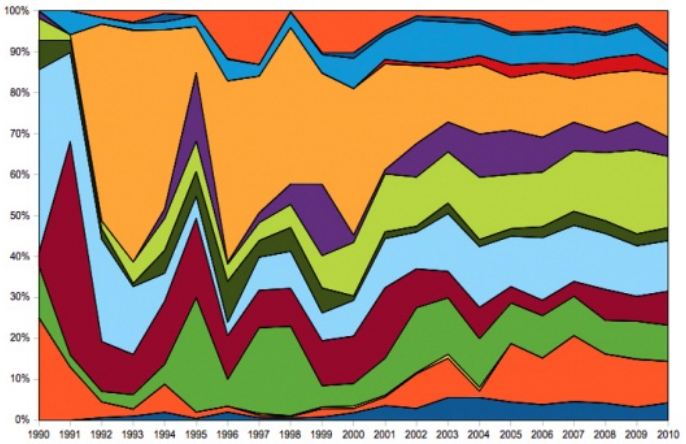
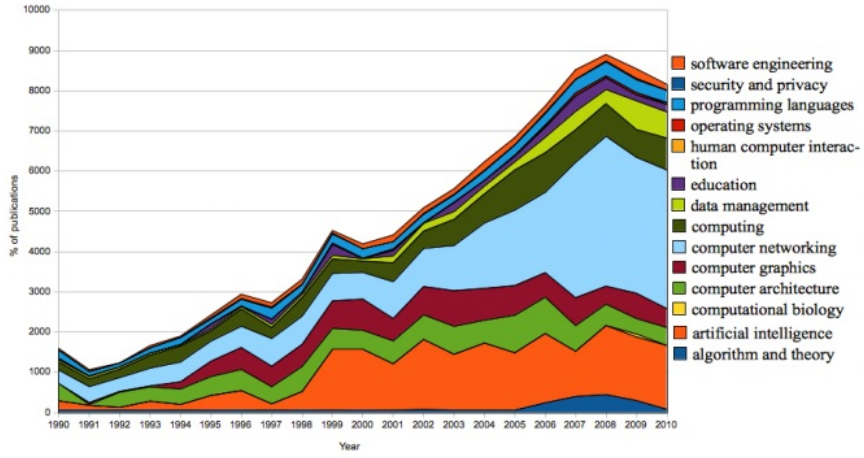
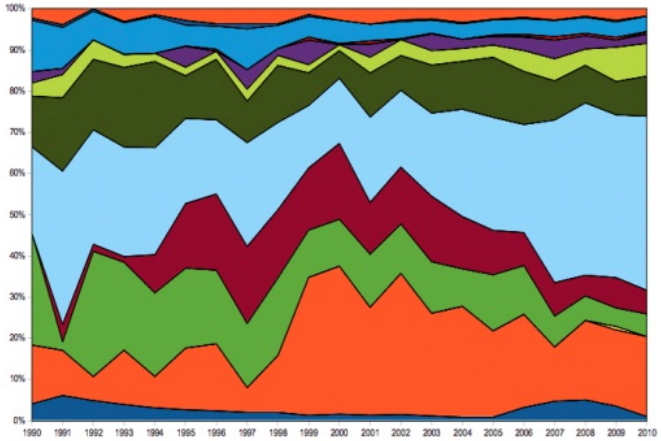


(b) ACM: Fraction

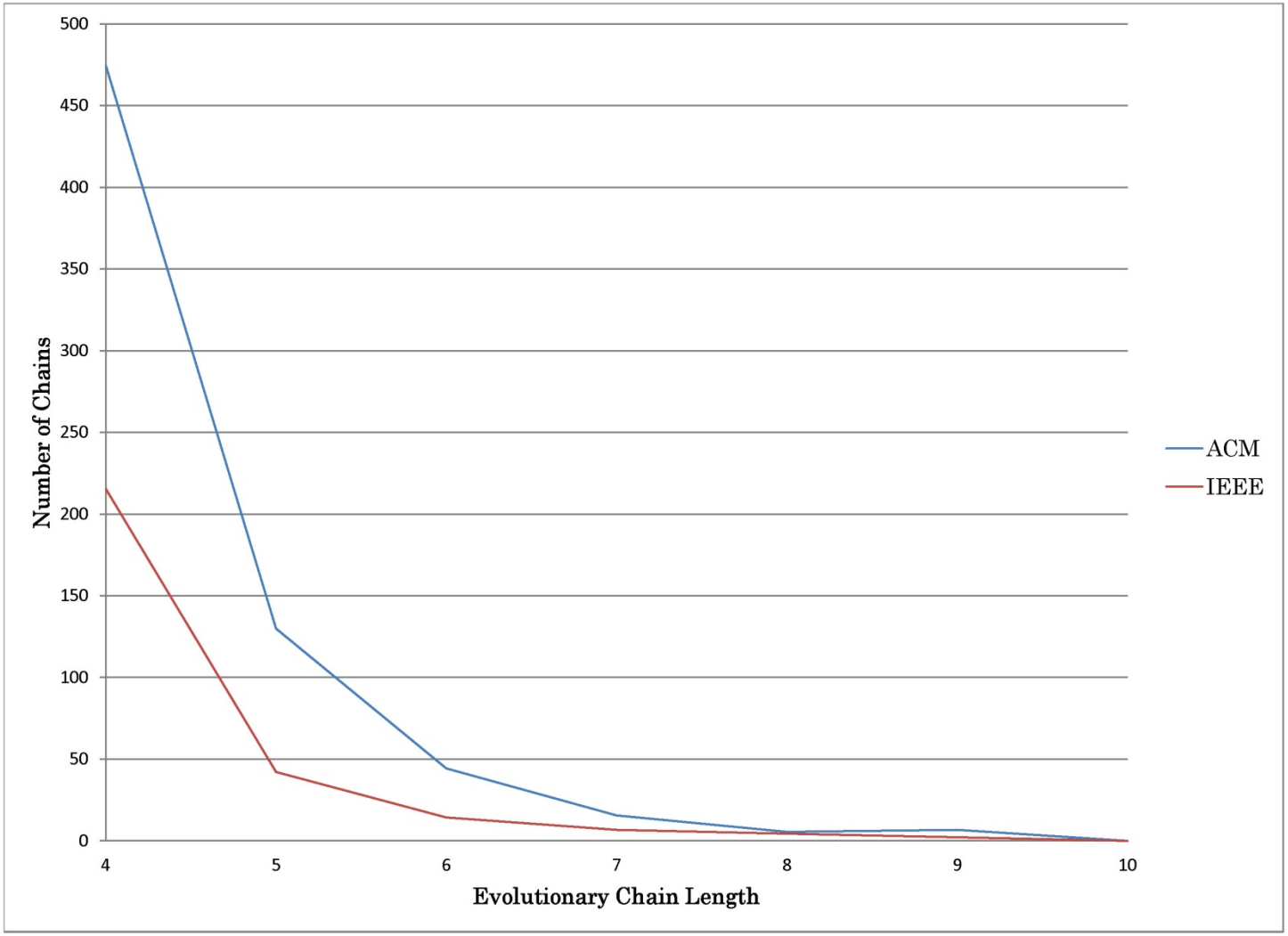


(c) IEEE: Frequency



(d) IEEE: Fraction

Communities of CS researchers



Key Findings

- CS continues to experience continuous and fundamental transformation.
- **CS research teams are short-lived and small-sized 4-6 researchers, half of which leaves in four years.**
- A typical scientist's research focus changes in a 10-year cycle and often includes a once-in-a-career dramatic shift, likely in response to evolving technology creating new CS fields.
- A burst of new keywords in grants precedes their burst in publications; less than 1/3 of new keywords burst in publications first, reflecting the importance of funding for success of new CS fields.