

Sheng Huang

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EDUCATION

- Royal Institute of Technology (KTH)** Stockholm, Sweden
Doctor of Philosophy (Ph.D.) in Electrical Engineering Oct 2011 – Mar 2015
• *Thesis:* Linear Coding, Applications and Supremus Typicality Oct 2014
- The University of Hong Kong (HKU)** Hong Kong
Master of Philosophy (M.Phil.) in Mathematics Sep 2009 – Aug 2011
• *Thesis:* Some Properties of $\bar{\Gamma}_n^*$ and Error Control with Group Network Codes Aug 2011
- Nanjing University of Finance and Economics (NUFE)** Nanjing, China
Bachelor of Science (BSc.) in Applied Mathematics Jul 2004 – Jun 2008
• *Graduated with College Honors:* top 1 out of 73 in Dept. of Applied Math
• *Cumulative GPA:* 92.4 / 100

EXPERIENCE

- Scientific Research** Stockholm, Sweden
Royal Institute of Technology (KTH) Aug 2011 – Jun 2015

- *Research interests:* information theory, coding theory & ergodic theory.
- *Theoretical tools:* information theory, coding theory, signal processing, network coding, stochastic probability theory, Markov chains, calculus, analysis, ergodic theory, linear algebra, abstract algebra, differential equations & stochastic calculus.
- *Achievements:*
 - 1) Up to existence, our work conclusively addresses the problem (open since 1982) on data compression with linear coding over non-field rings. It is proved that there always exists a non-field ring over which linear coding is optimal for i.i.d. data compression.
 - 2) Our work proves that linear encoders over non-field rings can strictly dominate their field counterparts for encoding functions of data sources.
 - 3) Our work proves that all induced systems of a recurrent asymptotically mean stationary (a.m.s.) dynamical system are a.m.s.. As a conclusion, the pointwise ergodic theorem holds simultaneously for all reduced processes, and the renowned Shannon–McMillan–Breiman theorem simultaneously holds for all the induced systems.
 - 4) We introduce a new information theoretical concept called *Supremus typical sequence*, which is stronger than the classical typical sequence from Shannon and possesses better ergodic properties.
- *Publications:* listed at people.kth.se/~sheng11.

- Web & Software Developing** Stockholm, Sweden
Personal Interests 2013 – 2015

- *PHP, MySQL, HTML, JavaScript programming:* online ticket management system (bus.princeps.cn) used by some interprovincial bus service companies.
- *Java programming:* Java program for bus ticket management (www.shenghuang.se/Java/ticketManageSystem) used in interprovincial bus service business.

- Miscellaneous** Stockholm, Sweden & Nanning, China
Personal Interests 2011 – present

- *Trading:* IPO, stock, CFD, FX & commodity future trading. 2011 – present
- *For fun:* Build a biodiesel processor. Jul 2015

- Teaching Assistant** Stockholm, Sweden & Hong Kong
KTH & HKU 2010 – 2015

- Lecturing tutorials, supervising projects, and designing homework & exams for courses:
 - 1) *Information Theory* (postgraduate level) Royal Institute of Technology (KTH), 2015
 - 2) *Digital Communications* (postgraduate level) Royal Institute of Technology (KTH), 2012 – 2014
 - 3) *Fundamentals of Network Coding* (postgraduate level) Royal Institute of Technology (KTH), 2011
 - 4) *Differential Equations* (undergraduate level) The University of Hong Kong (HKU), 2010 & 2011
 - 5) *Probability Theory* (undergraduate level) The University of Hong Kong (HKU), 2010

- System Software Engineer** Nanjing, China
Compal Information on Research and Development Co., Ltd. Apr 2008 – May 2009

- *Member of the Advanced Software Centre*
- *Member of the System Integration Team*
- *Member of Project Team of MID (Mobile Internet Device) & SoC (System on Chipset)*
- *Duties:*
 - 1) Design and program a suite of test programs and system-diagnose tools written in C and Linux script. These programs were integrated into the product line to reduce human effect in testing the pre-installed systems and configuring hardware settings of mobile devices.
 - 2) Port and cross-compile software to ARM chipsets.

SKILLS	Programming: C, Java, C++, Linux script, Matlab, Mathematica, PHP, SQL database Personal Servers: Cloud server, Web server, Email server Applications: Git, MS Office, Latex Web Design: HTML, PHP, SQL database, JavaScript, JQuery, Bootstrap	
LANGUAGES	English: Fluent. Swedish: Basic. Chinese (Mandarin): Native. Chinese (Cantonese): Native.	
ACADEMIC HONORS & AWARDS	Knut och Alice Wallenbergs Stiftelse (Knut and Alice Wallenbergs Trust) Knut och Alice Wallenbergs Stiftelse (Knut and Alice Wallenbergs Trust) KTH-EE Program of Excellence (1 000 000 sek / 120 000 eur) HKU Postgraduate Studentship HKU Postgraduate Studentship Prize for Outstanding Graduate First-Grade Scholarship for Excellent Academic Performance Prize for Outstanding Undergraduate Student (2007 – 2008 academic year) Science and Technology Innovation Scholarship (2006 – 2007 academic year) Prize for Outstanding Undergraduate Student (2006 – 2007 academic year) Second-Grade Scholarship for Excellent Academic Performance First Prize in Jiangsu-Competition-Region in 2006 Nationwide Undergraduate Students' Mathematical Contest in Modelling Science and Technology Innovation Scholarship (2005 – 2006 academic year) Third-Grade Scholarship for Excellent Academic Performance First-Grade Scholarship for Excellent Academic Performance Prize for Outstanding Undergraduate Student (2004 – 2005 academic year)	Aug 2013 May 2013 Mar 2012 Sep 2010 Sep 2009 Jun 2008 Jun 2008 Jun 2008 Oct 2007 Oct 2007 Oct 2007 Oct 2007 2006 Nov 2006 Nov 2006 Nov 2005 Nov 2005
INTERESTS	Watch; music; movie; piano; video game; travel.	
REFERENCE	Mikael Skoglund Professor, Vice Dean of EE School, Director of Communication Theory Department Royal Institute of Technology (KTH) School of Electrical Engineering Communication Theory Department 100 44 Stockholm, Sweden skoglund@ee.kth.se • +46 8 790-8430 • people.kth.se/~skoglund Hady Ghaouch PhD Royal Institute of Technology (KTH) F4, Osquidas väg 10 100 44 Stockholm, Sweden ghauch@kth.se • +46 76 213-5246	