

EE 449

Computer Communication Networks

Instructor: Paul Schmitt

https://teaching.pschmitt.net/EE449_Spring2023/

Introductions

Who am I?

<https://pschmitt.net>

- Academic network connectivity and privacy researcher
 - Grad school at UC Santa Barbara
 - Postdoc and Research Faculty at Princeton
 - Startup co-founder
- Main focuses
 - Bolting privacy and security onto systems that we all use
 - Mobile networks
 - Connectivity in challenging environments

My Research



My Research



Why networking, security, and privacy?

- Very broad area
- It's **important** and we are **terrible at it**
 - Lots of research problems
 - Real-world impact

Course Overview

Administrivia

- Class site https://teaching.pschmitt.net/EE449_Spring2023/
- Grading:
 - Midterm Exam: 35%
 - Final Exam: 35%
 - Exercises / Internet Routing Project: 25%
 - Class Participation: 5%

Course Goals

- Understand **how** the Internet works **and why**



from your
network plug...



...to mega-scale data-centers

Key Concepts and Problems

Naming

Layering

Routing

Reliability

Sharing

Key Concepts and Problems

Naming Layering Routing Reliability Sharing

How do you address computers, services, protocols?

Key Concepts and Problems

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How do you manage complexity?

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How do you get from A to B?

Key Concepts and Problems

Naming Layering Routing **Reliability** Sharing

How do you **communicate reliably using unreliable mediums?**

Key Concepts and Problems

Naming Layering Routing Reliability Sharing

How do you **divide scarce resources among competing parties?**

Course Goals: Skills

Build, operate, configure networks