

**BLG 632E**

**NEXT GENERATION**

**WIRELESS NETWORKS**

CRN: 23552

INSTRUCTOR: IRFAN ALI

**Final Take Home Assignment Short Report**

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**Header Space Analysis: Static Checking For Networks**

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Our goal is to automatically find an important class of fail- ures, regardless of the protocols running, for both opera- tional and experimental networks.

we developed a general and protocol- agnostic framework, called Header Space Analysis (HSA). Our formalism allows us to statically check net- work specifications and configurations to identify an im- portant class of failures such as Reachability Failures, Forwarding Loops and Traffic Isolation and Leakage problems.

we look at the entire packet header as a concatenation of bits without any associated mean- ing. Each packet is a point in the {0, 1} L space where L is the maximum length of a packet header, and network- ing boxes transform packets from one point in the space to another point

Hassel was used to analyze the Stanford University backbone network, and found all the forwarding loops in less than 10 minutes, and verified reachability constraints between two subnets in 13 seconds.

we show that header space analysis can be used in existing net- works where protocol interactions are increasingly com- plex.

**Real Time Network Policy Checking using Header Space Analysis**

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