Cyber Security Research at Jordan University of Science & Technology - An Overview

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Jordan University of Science & Technology
Assistant Professor  Department of Network Engineering & Security @ JUST

Education:
- PhD, Iowa State University, 2005
- Ms, Iowa State University, 2002
- BSc, Jordan University of Science & Technology

Research interests
- Network security
- DDoS attacks
- Botnets
- Cloud security
Jordan University of Science & Technology (JUST)

<table>
<thead>
<tr>
<th>Established</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Public</td>
</tr>
<tr>
<td>Students</td>
<td>25,000</td>
</tr>
<tr>
<td>International</td>
<td>5,000</td>
</tr>
<tr>
<td>Location</td>
<td>Al-Ramtha, Jordan</td>
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<tr>
<td>Campus Area</td>
<td>Urban 11 square Kilometers</td>
</tr>
<tr>
<td>Faculty members</td>
<td>850</td>
</tr>
<tr>
<td>Colleges</td>
<td>10</td>
</tr>
</tbody>
</table>

United-States/Middle-East Workshop On Trustworthiness in Emerging Distributed Systems and Networks, Istanbul- Turkey, 4-6 June 2012
JUST Location & Pics
## Department Programs

<table>
<thead>
<tr>
<th>Department</th>
<th>Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Engineering (CPE)</td>
<td>BSc, MS</td>
</tr>
<tr>
<td>Network Engineering &amp; Security (NES)</td>
<td>BSc</td>
</tr>
<tr>
<td>Computer Science (CS)</td>
<td>BSc, MS</td>
</tr>
<tr>
<td>Computer &amp; Information Systems (CIS)</td>
<td>BSc</td>
</tr>
<tr>
<td>Software Engineering (SE)</td>
<td>BSc</td>
</tr>
<tr>
<td>Service Science Management &amp; Engineering (SSME) (under construction jointly with IBM).</td>
<td>BSc</td>
</tr>
</tbody>
</table>

Total # students 1500

# Faculty members 50
• Network Engineering & Security Department
• Established in 2009
• 11 Faculty members
• 350 Students
• Rich curriculum
  – Computers Networks (4 courses)
  – Computer & Network Security (3 courses)
  – Wireless Networking (2 courses)
  – Multimedia systems (2 courses)
  – Advanced topics (3 elective courses)
Cyber Security Research Group

Basheer Al-Duwairi
- DDoS attacks, mitigation and traceback
- Botnets
- Smartphone security
- Cloud Security

Ahmad Al-Hammouri
- Cyber-Physical Systems (also known as Networked Control Systems),
  - Smart power grid,

Monther Al-Duwairi
- hardware algorithms and architectures for network processing and security
- Intrusion detection systems

Graduate students & Research Assistants
- 7 Ms students
- 4 research assistants

United-States/Middle-East Workshop On Trustworthiness in Emerging Distributed Systems and Networks, Istanbul- Turkey, 4-6 June 2012
Ongoing Research Projects - DDoS Attacks

- Developing techniques to provide DDoS protection service
  
  

- Collaboration project with a team from TU Berlin, Summer 2012
Ongoing Research Projects - Botnets

- Fast Flux Characterization and Detection

- Smartphone Botnets
  - Detection algorithms for SMS-based mobile botnets
  - New designs (centralized, P2P, Hybrid)

- Botnet Detection
  - B. Al-Duwairi and Lina Al-Ibbini, “BotDigger: Autonomous and Intelligent Botnet Detector”. In Proc. of the 5th International Conference for Internet Monitoring and Protection (ICIMP 2010), Barcelona, Spain.
Other Projects

• Email spam detection

• ConTest: A GUI-Based Tool to Manage Internet-Scale Experiments over PlanetLab

• SOA Based Migration of JUST Enterprise Systems to the Cloud
Thank You!