GLOBAL PROBLEMS, GLOBAL SOLUTIONS: PROSPECTING OPPORTUNITIES FOR JOINT RESEARCH ON COMPUTER SECURITY
ACKNOWLEDGEMENTS

Thanks to Daniel, Miguel, Rodrigo & Matheus

INF/UFRGS, Institute of Informatics, Federal University of Rio Grande do Sul
ACKNOWLEDGEMENTS

Thanks very much Priscila & Daniela
OUTLINE

- disclaimers
- on groups and security research communities
- global problems
- selected global problems
- matchmaking
DISCLAIMERS

› assume that same security problems affect us all
› let community be much larger than group (of attendees)
› this keynote to highlight opportunities for joint research...
› it is no presumptuous attempt to be visionary or point out directions
› represents my own (limited and biased) view
› very hard (shy) to describe B to A in front of B and vice-versa :)
› inaccuracies due to ever-changing participant list
› please intervene, correct me and contribute as desired
OUTLINE

▸ disclaimers

▸ on groups and security research communities

▸ global problems

▸ selected global problems

▸ matchmaking
WORKSHOP (ACADEMIC) PARTICIPANTS

1. Kevin Butler, Un of Florida
2. Mark Tehranipoor, Un of Florida
3. Patrick Traynor, Un of Florida
4. Daniel J. Ragsdale, Texas A&M
5. Guofei Gu, Texas A&M Un
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7. Anna Squicciarini, Penn State Un
8. Nadia Heninger, UPenn
9. Michelle Mazurek, Un of Maryland
10. Micah Sherr, Georgetown Un
11. Matt Bishop, UC Davis
12. William Robertson, Northeastern Un
13. Bradley Huffaker, UCSD/CAIDA
14. Manuel Egele, Boston Un
15. Fabian Monrose, Un North Carolina
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17. Jedidiah Crandall, Un of New Mexico
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20. Marco Carvalho, Florida Institute of Technology
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4. Marinho Barcellos, UFRGS
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7. Daniel Figueiredo, UFRJ
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9. Joao Gondim, UNB
10. Jorge H C Fernandes, UNB
11. Adriano Mauro Cansian, UNESP
12. Andre Gregio, UNICAMP
13. Paulo Licio de Geus, UNICAMP
14. Diego Aranha, UNICAMP
15. Roberto Gallo, Kryptus/UNICAMP
16. Marcos Simplicio Jr., USP
17. Daniel Macedo Batista, USP
18. Ricardo Custodio, UFSC
19. Raimundo Macedo, UFBA
20. Jeroen van de Graaf, UFMG
21. Priscila Solis, UnB
GLOBAL PROBLEMS, GLOBAL SOLUTIONS: PROSPECTING OPPORTUNITIES FOR JOINT RESEARCH ON COMPUTER SECURITY

ACADEMIC PARTICIPANTS: FACES TO NAMES
GLOBAL PROBLEMS, GLOBAL SOLUTIONS: PROSPECTING OPPORTUNITIES FOR JOINT RESEARCH ON COMPUTER SECURITY

BRAZILIAN RESEARCH COMMUNITY: BEYOND WORKSHOP

- Alberto Schaeffer-Filho, UFRGS
- Aldri dos Santos, UFPR
- Altair Olivo Santin, PUCPR
- Anderson Nascimento, UW-Tacoma
- André Grégio, CTI
- André Luiz dos Santos, UECE
- Carla Westphall, UFSC
- Carlos Maziero, UTFPR/UFPR (Coordinator)
- Carlos Westphall, UFSC
- Célio Vinicius Neves de Albuquerque, UFF
- Davidson Boccardo, INMETRO
- Denise Goya, UFABC
- Diego Aranha, UNICAMP
- Eduardo Alchieri, UnB
- Eduardo Feitosa, UFAM
- Eduardo Souto, UFAM
- Emerson Ribeiro de Mello, IFSC
- Hao Chi Wong, Intel
- Jean Martina, UFSC
- Jeroen Graaf, UFMG
- Joaquim Celestino Jr, UECE
- Joni Fraga, UFSC
- Julio Hernandez, UNICAMP
- Lau Cheuk Lung, UFSC
- Leonardo Oliveira, UFMG
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- Luciano P Gaspar, UFRGS
- Luiz Carlos Albini, UFPR
- Luiz Rust Carmo, INMETRO
- Marco Henriques, UNICAMP
- Marcos Simplicio Jr, Poli-USP
- Marinho Barcellos, UFRGS
- Mário Sérgio Alvim, UFMG
- Michele Nogueira, UFPR
- Michelle Wangham, UNIVALI
- Paulo André Gonçalves, UFPE
- Paulo Lício de Geus, UNICAMP
- Pedro Braconnot Velloso, UFRJ
- Rafael Misoczki, Intel Labs, USA
- Raphael Machado, INMETRO
- Raul Ceretta Nunes, UFSM
- Raul Weber, UFRGS
- Ricardo Dahab, UNICAMP
- Roberto Gallo, KRYPTUS
- Rossana Andrade, UFC
- Routo Terada, IME-USP (Coordinator)
- Ruy José Guerra de Queiroz, UFPE
- Sergio de Oliveira, UFSJ

using the TPC of security scientific event in Brazil as a reference
BRAZILIAN RESEARCH COMMUNITY: GROUPS GEO-DISTRIBUTION
BRAZILIAN RESEARCH COMMUNITY

- brazilian university ecosystem (public/state/federal vs. private)
- relatively young research groups (crypto vs. network security)
- people (professors, tenure, researchers, postgrads, undergrads)
- funding bodies: capes, cnpq, state agencies (eg fapesp)
- context of resource scarcity
- objective quality assessment (qualis, postgraduate ranking)
- industry not so altruist, requires incentives and controls
- virtually no access to data, traces, observation points in br
GLOBAL PROBLEMS, GLOBAL SOLUTIONS: PROSPECTING OPPORTUNITIES FOR JOINT RESEARCH ON COMPUTER SECURITY

CONTRASTING WITH US RESEARCH COMMUNITY (*)

- probably world-largest research community, and well-established
- covers all topics on security (and the ones we’re yet to find out :)
- high quality scientific output delivered by top groups
- more resources available from funding bodies & industry
- flexibility to spend (researcher assumed non-malicious)
- subjective quality assessment
- less bureaucracy, lower teaching load with supportive TAs
- more access to data from Industry

(*) my personal opinion, not ground truth
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GLOBAL PROBLEMS: BASED ON AN ARBITRARY CALENDAR (*)

- Feb: Network and Distributed System Security Symposium (NDSS)
- May: IEEE Symposium on Security and Privacy (Oakland)
- Aug: Usenix Security (SEC)
- Aug: International Cryptology Conference (CRYPTO)
- Oct: ACM Conference on Computer and Communications Security (CCS)
- Oct: ACM Internet Measurement Conference (IMC)
- Nov: SBC Brazilian Symposium on Information & Systems Security (SBSeg)

(*) biased list, including ACM IMC, but omitting important crypto events
GLOBAL PROBLEMS OR AREAS

1. software security
2. malware
3. cloud security
4. web security
5. network security
6. wireless security
7. mobile device security
8. intrusion detection
9. digital forensics
10. privacy
11. anonymity
12. cryptography
13. authentication
14. digital signature and certification
15. e-voting security
16. digital currency
17. trust
18. hardware security, hardware-based security
19. information flow security
20. social engineering/usable security
21. protecting intelectual property
22. insider threat
23. online social networks
24. cybercrime
25. telecommunication infrastructure
GLOBAL PROBLEMS OR AREAS

- it would be interesting to hear from the expert attendees what is their view on the relevance of each area...
- ...and on security grand challenges
- are those 5 grand challenges envisaged by CESeg correct?
TITLE

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SELECTED GLOBAL PROBLEMS, US GROUP (*)

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6. anonymity
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8. e-voting security
9. intrusion detection
10. cloud security
11. hardware security, hardware-based security
12. digital forensics
13. usable security
14. cyber ethics
15. digital signature and certification
16. web security
17. trust
18. telecomm infrastructure (cell networks)
19. insider threat
20. OSN
21. cybercrime
22. digital currency
23. authentication
24. wireless security
25. protecting intellectual property

(*) based on interests stated on the website/CV of researchers (and papers)  
(*) ties solved in arbitrary order
SELECTED GLOBAL PROBLEMS, US GROUP

1. software security
2. network security
3. privacy
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6. anonymity
7. cryptography
8. e-voting security
9. intrusion detection
10. cloud security

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12. digital forensics
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14. cyber ethics
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SELECTED GLOBAL PROBLEMS, BR GROUP (*)

1. network security
2. software security
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7. mobile device security
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10. privacy
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18. anonymity
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- filtered global problems
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MATCHMAKING

- based on the list of problems that have been looked at recently by any workshop participant (challenge: participation changed amidst the process)
- topic present when appears to be a common interest
- initial list, likely to be expanded during discussions

as in brazil, everything boils down to football...
MATCHMAKING (ORDERED BY COMMON INTERESTS)

<table>
<thead>
<tr>
<th>Topics according to groups (not communities)</th>
<th>Brazil</th>
<th>x</th>
<th>US</th>
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