Welcome to HackRice 8
Schedule
Visit hack.rice.edu for detailed information

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**Friday 9/14**

- Hacking begins at 8:00pm
- Workshop 1: New Hacker Track (8:30pm)
- Workshop 2: Schlumberger (9pm)
- Workshop 3: Extrahop (10pm)
- Workshop 4: JP Morgan Chase (11pm)

**Saturday 9/15**

- Schlumberger Oil Rig VR Demo (10am)
- Workshop 5: Capital One (1pm)
- Workshop 6: Introduction to Data Science (2pm)
- MLH Cup Stacking Mini Event (4pm)

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**Sunday 9/16**

- Hacking ends (8:30 am)
  - All Devpost submissions must be in by 9am
- Judging will begin at 9:30am
- Closing Ceremony at 1pm
Logistics
Hacking Logistics

- 4 People per team
  - Check this out for team building: https://crowdforge.io/hackathons/hackrice
- If you compete for a track, you are still eligible for general prizes
- Cannot compete for more than one track
- One project will only win one prize
- Extension Cords are available at the front of the room
Tracks
<table>
<thead>
<tr>
<th>Tracks</th>
<th>New Timers</th>
<th>Data Science</th>
<th>Design</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Create a bot and integrate it with an existing platform (e.g. messenger chatbot)</td>
<td>Brief Introduction to Machine Learning and Data Science. The track provides various prompts where one might use data science to find analyze data.</td>
<td>On any platform redesign a website or app’s user interface to ultimately improve user experience and aesthetic.</td>
</tr>
</tbody>
</table>
Communication
Hacker Communication

- Facebook Event page
- Slack (hackrice8.slack.com)
  - Check email for join link
  - Contact staff member if needed
- Sign up for EZ Text (for important updates)
  - Text “hackrice” to 797979
- Website (hack.rice.edu)
Sponsor Challenges
Facebook’s Challenge & Prize!

Facebook will award a prize to the team that makes the best game using the Facebook Instant Games SDK. The game is expected to run on Messenger. Judges will be looking for engagement, quality, and completeness in the hack.

The winning team will be invited to participate in Facebook’s Global Hackathon in Menlo Park, CA.

For details, see the [Instant Games Documentation](https://developers.facebook.com/docs/games/instant-games/)

Only the [Game Engines listed on this page](fb.gg/igengines) are compatible with Instant Games.
Chevron’s real-time work order scheduling optimization

Background: Chevron has large scale operations and complex process facilities (refineries and liquified natural gas production facilities). Scheduling work orders on these facilities with differing repair requirements, specialized technicians, and potentially hours of drive time between locations can be difficult.

Challenge: Build a work order tracking system that tracks (1) the work orders that are submitted and (2) the technicians that are completing them to optimize how technicians are assigned and work orders are completed. Knowing where technicians are, what they are certified/qualified to repair, how long they are planning to being there, other work orders in the same or nearby location, etc will be invaluable in being able to dynamically schedule and dispatch existing and new work orders to technicians at the beginning of the day and while onsite. Updating each technician with their schedule of work orders can be done through any means of mobile technology, SMS, call, mobile app, etc.

The detailed file contains details on the following:

- Facility – number and location
- Equipment – failure rates, time to fix, facility location and number
- Workers – names, equipment certifications, shifts
- Work Orders – 30 examples
JPMorgan Chase Social Good Challenge
Best Hack for Financial Literacy

CHALLENGE
We challenge you to create a web or mobile application that would either promote financial literacy for individuals (college students, unbanked adults, small businesses, etc) on or provide financial advisory/education on derivatives, futures trading, or how to invest to companies. In addition to providing gamified, guided learning, the application should present users with interactive scenarios.

Extra points will be given if you incorporate one or more of the following:

• The learning scenarios are configurable to allow users to plug in “real-life figures.”

Example: Given a loan scenario, the salary range required to pay back incurred debt.

• The web or mobile application is scalable to deliver learning in any other area of study

PRIZE
Bose SoundLink Wireless Headphones
(1 per winning team member)

JPMORGAN CHASE JUDGING CRITERIA
Projects will be judged based on the following criteria:

• **Impact:** How well does the solution address the challenge or problem?

• **Innovation & Creativity:** How creative is the solution? Does it bring new ideas and approaches to solving the problem?

• **Completeness of Solution:** Is the solution finished? Does it work? If not, is there a roadmap for future enhancements?

• **Sustainability:** Is the solution sustainable within the context of the community it’s aiming to impact?

• **Design:** Is the solution well thought out and designed?
Ready, Set, Hack:

The best use of technology for a financially driven problem
HOW MIGHT WE END HOMELESSNESS IN HTX?

For entrepreneurship focused mentoring and resources: entrepreneurship.rice.edu
or email Emily (emm12@rice.edu)
Capital One

Best Financial Hack

How Will You Reimagine Banking?

$250 Amazon Gift Cards To Each Member Of The Winning Team
Azure for Good

Best use of Microsoft Azure that empowers individuals or groups to achieve more.

Free trial and credits:
https://azure.microsoft.com/en-us/free/
Indeed

We would like to see innovative projects and solutions that tackle societal problems. This could be anything from connecting unemployed jobseekers to jobs to linking hurricane victims to disaster relief resources.
Heat. Light. Power. Meeting society’s growing demand for energy is an immense responsibility. And at BP, it’s a responsibility we all share. We find, develop and produce energy resources every day – energy that’s behind the products we all rely on. Doing all of that sustainably, securely and at a reasonable cost is our challenge. It’s one we rise to as a team. A team made of diverse people with different perspectives who work together to make change happen. Scientific breakthroughs, engineering firsts, process improvements – everything we achieve is down to the drive, ambition and collaboration of our people. And you could be one of them.
Ask an engineer how to improve an application, and they will likely say, "give me a way to see MORE DATA". Surveillance engineers may analyze output from a dozen or more sensors in the same visualization. Line charts are the default choice for this workflow, but they are cumbersome, especially if the data streams have different scaling and units. And as IoT becomes pervasive at the wellsite, this problem will only grow.

Show us how to do it better!
Deliver a web application to display/query/analyze time-series data from downhole equipment in innovative ways.
Hey guys!

There’s a special .tech category prize of $250 for one team that hosts the best hack/site on a .tech domain. The folks over at .tech domains are also offering a free .tech domain to every programmer at HackRice. Just log on to www.get.tech/startups and fill in your details and the secret code, which is, HACKRICE. Make sure to use your coupon code before the hackathon ends as your code will expire post that.

So, get your free .tech domain and host your hack on that to be eligible for the $250 Amazon Cash Voucher prize!
Indeed

We would like to see innovative projects and solutions that tackle societal problems. This could be anything from connecting unemployed jobseekers to jobs to linking hurricane victims to disaster relief resources.
Judging Guidelines
Criteria (1 Of 2)

- Technical Difficulty
  - Solutions should address technically challenging problems while falling anywhere between being beautifully simple to implementing complex, cutting-edge technologies.

- Creativity
  - Solutions should be original and either (1) define a new method for solving an unaddressed problem, or (2) present a new approach to a proven solution for a known problem. Solutions should demonstrate that intentional and appropriate design decisions have been made.
Criteria (2 of 2)

- **Design and Polish**
  - We are looking for aesthetically and functionally pleasing projects with an intuitive and polished user experience.

- **Practicality and Usefulness**
  - Projects will be evaluated based on their utility and applicability to a set of problems experienced by people in the real world. Emphasis is placed on ensuring solutions can be extrapolated meaningfully outside of the demonstrated use case.
Prizes
HackRice General Prizes

- 1st Place
  - Juiced Electric Skateboard
- 2nd Place
  - Nintendo Switch
- 3rd Place
  - Fancy Coffee Machine

Track Prizes

- New Hackers
  - Sunrise Alarm Clock
- Data Science
  - Amazon Echo Plus
- Design
  - Polaroid Cube

More prizes include...
- Company Sponsored Challenges
- MLH Prizes
Raffles
Raffles

- Must be present and checked-in to win
- Times will be announced in Slack and on our website
- Raffle prizes include:
  - Computer monitor
  - Google Home
  - Bose Headphones
  - Samsung Galaxy Tablet
  - And more!
Sponsor Presentations
Technology ignites our business

Make Tomorrow Together
In 2017, we spent $9.5 billion on technology.

80% of Fortune 500 companies do business with us.

Nearly 50,000 technologists.
Opportunities around the globe
Technology for Social Good
Put your tech talents to work to give back to your community

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Disability/Veteran.
Apply for Code for Good: jpmorganchase.com/codeforgood

Code for Good Event Dates

Sep 21-22: Delaware
Oct 05-06: Dallas
Oct 05-06: Tampa
Oct 12-13: Chicago
Oct 19-20: Columbus
Oct 26-27: Jersey City

Application Deadline: September 19, 2018
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• Design: Is the solution well thought out and designed?
Get to know us this weekend

1. Pick up some JPMorgan Chase swag

2. Grab a JPMorgan Chase Challenge Flyer & Judging Criteria

3. Learn more about Code for Good and our Software Engineering Program

4. Register your name on one of our recruiting iPads for a chance to win an Amazon Echo Dot
Make Tomorrow Together.

jpmorganchase.com/techcareers
Hack with Purpose

HACKRICE

David Saier – Platform Software Architect at Schlumberger
Hack: Definition

Definition of Hack

1: a tool for rough cutting or chopping : an implement for hacking

2: nick, notch

3: a short dry cough

4: a rough or irregular cutting stroke : a hacking blow

5: restriction to quarters as punishment for naval officers —usually used in the phrase under hack

6

- a: a usually creatively improvised solution to a computer hardware or programming problem or limitation

- b: an act or instance of gaining or attempting to gain illegal access to a computer or computer system

- c: a clever tip or technique for doing or improving something
‘Hacks’ I encountered…

• Drones for inspections
• Slugging detection
1. Drone inspections
Drone inspections
Drone inspections - Real Time Issue Detection
2. Pipeline Slugging
Pipeline Slugging - Simulation

DYNAMIC SIMULATION

- Riser Pressure
- Platform Oil and Water Rate
- Platform Gas Rate

[Images of simulation graphs and software interface]
Slugging hack!
Have fun!

- SLB data visualization challenge
  github.com/Schlumberger/hackathon

- Workshop at 9 PM
  - DELFI
  - Intelligent Oilfields
MLH

https://docs.google.com/presentation/d/1xNgMmWs3CUVwZpj2UD-XEjAKKoRpKV3ewPTn6oNfBO/M/edit?usp=sharing
End of Opening Ceremonies
Product Expose
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MACHINE LEARNING BASED ON WIRE DATA

**DATA**
- Decryption
- 50+ Protocols
- L2-L7 Classification
- Reconstructed Sessions
- 4600+ Features

**MATH**
- Feature Engineering
- Dimensionality Reduction
- Outlier Detection
- Critical Asset Lens

**RESULTS**
- Unprecedented Visibility
- Definitive Insight
- Immediate Answers
6 Assets with Detections
8 Security Detections

- **Exfiltration**: titan-fs2-hx - ONGOING
- **Reconnaissance**
  - VMware 192.168.6.185 - ONGOING
  - web-prod-cpx-virt-01 - ONGOING, 3 HOURS AGO
  - Qumrnet 16018D - 3 HOURS AGO
  - dns-primary.example.com - 3 HOURS AGO
  - ldap-02.example.com - 7 HOURS AGO

1 Detection
- Suspicious CIFS Client File Share Access - Risk Score 83, ongoing

**DNS**
- FTP Responses: 5

**HTTP**
- 404 Not Found Errors: 332K (481.39%)
- 500 Server Errors: 371 (150.68%)

**SSL**
- Insecure TLSv1.0 Protocol Sessions: 5.39K (124.97%)
- Self-Signed Sessions: 1.62M (20.44%)
Go to the Security Overview page to view high-risk detections and metrics.

**Alert History**

<table>
<thead>
<tr>
<th>Severity</th>
<th>Alert</th>
<th>Source</th>
<th>Time</th>
<th>Alert Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALERT</td>
<td>DNS Error Ratio - Red</td>
<td>All Activity</td>
<td>2018-06-12 11:31:00</td>
<td>Threshold</td>
</tr>
<tr>
<td>ALERT</td>
<td>GeoIP Inbound Alerts</td>
<td>GeoIP</td>
<td>2018-06-12 11:31:00</td>
<td>Threshold</td>
</tr>
<tr>
<td>ALERT</td>
<td>GeoIP Outbound Alerts</td>
<td>GeoIP</td>
<td>2018-06-12 11:30:30</td>
<td>Threshold</td>
</tr>
<tr>
<td>ALERT</td>
<td>DB Error Ratio - Red</td>
<td>All Activity</td>
<td>2018-06-12 11:28:00</td>
<td>Threshold</td>
</tr>
<tr>
<td>ALERT</td>
<td>Weak Cipher Suites</td>
<td>Cryptographic Compliance</td>
<td>2018-06-12 11:26:30</td>
<td>Threshold</td>
</tr>
<tr>
<td>ALERT</td>
<td>SSL/TLS Policy Violations</td>
<td>Cryptographic Compliance</td>
<td>2018-06-12 11:26:30</td>
<td>Threshold</td>
</tr>
</tbody>
</table>

**Threat Intelligence**

**Summary**

- 35 Network Threat Connected
- 11 DNS Threat Requests
- 0 HTTP Threat Host Requests
- 0 HTTP Threat URI Requests

**Suspicious Activity**

- Network Threat Connected
- DNS Threat Requests
- HTTP Threat Host Requests
- HTTP Threat URI Requests

**Sessions with Weak Ciphers by Server**

- 172.22.1.90
- t0.gstatic.com
Reveal(x)

By Karan Thakker
Open-source programming competition enabling players to learn AI, ML, & other advanced algorithms in dynamic game setting.

- Thousands of players globally
- Millions of games played
- 20+ languages and frameworks
Launches October 16, 2018

- Real-world theme and exploratory game
- Opportunity to implement a wide range of AI and machine learning strategies
- New interactive features to support the developer experience
Capital One API Demo

http://api.reimaginebanking.com/
Final Reminders
Enjoy the event!

- All updates will be on our website—hack.rice.edu
- Join our FB event & group
- Join slack
- Sign up for EZ Texting (for important updates)
  - Text “hackrice” to 797979
- Visit the information desk (where Registration was) or ask a volunteer in a blue shirt if you have any questions!
Thank you to all of our Sponsors!