Welcome, Clinic!

Take a clinic notebook and handouts

The handouts are due Friday @ 4pm to DruAnn Thomas (Olin 1257)

Sit with your team:

Catch up / introductions
summer overlaps?
schedule overlaps?

Today: Clinic program overview and first-week
Introductions + roles...

Zachary Dodds

Director, CS Clinic
2017-

recruiter, worrier

DruAnn Thomas

Coordinator, CS Clinic
-2017-

fixer!

Katherine Breeden

Advisor, CS Clinic
Welcome!

faculty advisor

Ed Vanderbilt

Liaison, Steelcase
x3

sponsor repr.
Overview and first-week...
two topics today
Overview and first-week...

What is Clinic?

• Sponsored Student Capstone Project Course
• Starts in September, Ends in May
• Team of 4 to 5 Students & Faculty Advisor
• 10 hours/student/week, 1,200 -1,500 hours total
• Fee is $49,000
• Sponsor owns all IP

(recruiting slide)
<table>
<thead>
<tr>
<th>Sponsor</th>
<th>Title and link to description</th>
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<tbody>
<tr>
<td>23andme</td>
<td>Genetic Gameplay: Showcasing 23andMe's personal-genetics API</td>
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<td>Accenture Labs</td>
<td>3d Model Integration for Agile Digital Product Development</td>
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<td>Amazon Music</td>
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<td>Amazon Prime Now</td>
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<td>Barefoot Networks</td>
<td>Traffic testing in fully programmable, 6.4Tbps networks</td>
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<td>Consensus Corporation</td>
<td>Algorithmic Fairness: Using &quot;adversarial&quot; machine learning to detect disparate impact in geo-based risk modeling</td>
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<td>Dart NeuroScience</td>
<td>Computational network expansion, subnetwork analysis, and network visualization</td>
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<td>Helix</td>
<td>Integrating Genetics and Wearable Devices for Discovery</td>
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<td>Intuitive Surgical</td>
<td>Temporal Segmentation of Surgical Suturing</td>
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<td>Lawrence Livermore National Laboratory</td>
<td>Integrating Distributed-Memory Machine Learning into Large-Scale HPC Simulations</td>
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<td>Mercedes-Benz R&amp;D</td>
<td>Augmented and Mixed Reality for the Driver</td>
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<td>NASA Ames</td>
<td>Tradeoffs in scheduling and execution for autonomous systems</td>
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<td>New Relic</td>
<td>Modeling, Predicting, and Visualizing System–performance Time Series</td>
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<td>Pixar / RenderMan</td>
<td>Compressed Texture Access</td>
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<td>Proofpoint</td>
<td>Detecting Phishing Web Pages using Deep Learning</td>
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<td>Rapid7</td>
<td>Securing Today's Software-development Pipelines</td>
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<tr>
<td>Steelcase</td>
<td>Wood Veneer Classification and Cataloguing, Mobile</td>
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<tr>
<td>Webroot</td>
<td>Machine Learning on DNS data to discover security threats</td>
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Sponsor benefits

- Results, prototype, pilot, study, ...
- Insights, ideas, directions, ...
- **Apprenticeship:** sponsors own the IP

- and -

- Investigation
- Recruiting
- Collaboration

- and -

- Enjoyment!
Defining Success

- Sponsors are (usually) looking for insight and ideas
- “Failure” doesn’t mean negative results, it means lack of results
- True failure usually comes from lack of team commitment & effort
  - Shows up in weekly meetings where nothing has happened and no ideas are forthcoming

The team is central in defining success. *This* often feels quite different
Clinic is a Course

- Clinic expects 10 or more hours per week per student (or, 40 or 50 hours per week per team)
- This includes teleconferences and Tuesday meetings
- About 1200-1500 person-hours per project

Key goal: optimize output for the investment input
Clinic is fundamentally a team experience

Manage Your Workload

- These are team projects; you can’t do it all alone
- Distribute work to make best use of each person’s skills
  - All team members, not just PM, responsible for load balancing
- If somebody slacks off for even one week, that’s a permanently lost resource
  - You can’t make up the time later!
- Your advisor is watching but it’s your responsibility

Clinic is fundamentally a team experience
Clinic’s Course Goals

- **Optimize output** for each week’s 10+ hours input
- **Sustained professionalism** on an authentic, externally-motivated project
- **Effective teaming**: collaboration and organization

Sponsors’ Goals?  

Alignment!
Roles

How the Liaisons Fit In

Liaisons:
- Usually came up with project, or at least were deeply involved
- Know the problem well
- Have unique knowledge that will help you
- Care about your progress and results

Keep liaisons informed (e-mail, teleconference, etc.)

But use their time efficiently; they are very busy people

busyness > business

text key constraint: 1-2 hrs.
Roles

The Faculty Advisor

Advisor does *not* do the work of the project

Advisor *does*

- Keep you and your team on track
- Suggest how to solve problems and do research
- Offer ideas and suggestions
- Review all documents
- Assign your grade in consultation with me

In 2015 and beyond, *all* of CS
Roles

How You Fit In

Useful to think of relationship as consultant (you) and client (sponsor)

- **NOT** employer/employee  
  *can be different from internships*
- You are helping them solve a tough problem
- May need to balance their needs against other demands

You should push back / change direction ~ *professionally*
For example...

Apatite to Zircon (4 clinic projects)
Resources

The Clinic Handbook details ALL of the clinic program. Read this!

Where all of this information is located...
Overview and first-week...

and other details – some small, all important!
Overview and first-week...

[Tuesday, August 29]
+ All clinic__students__ meet at our usual weekly timeslot (usually T 11am-12:15pm).
  + This one week, it will be 11-noon, because it is during HMC's convocation.
  + This one week, it will be in Shanahan B460, because convocation is in McAlister
  + I'll overview Clinic; most faculty advisors will be at convocation

[Tuesday, August 29]
+ Your team should schedule a meeting with your fac. advisor
  + For Tuesday, ideally: many CSers are free T 4:15pm and/or T 5:15pm
  + If an advisor does not have first-year advisees, Tuesday lunch/noon might work

[Wednesday, August 30]
+ Your team should meet to prepare for the liaison meeting Thursday
  + research and create an agenda (with questions/thoughts/plans/ideas)
  + send that agenda to liaison(s) no later than Wed. evening (advisors will help set details)

[Thursday, August 31]
+ This is Clinic Orientation Day and the kickoff meeting with liaisons
  + the meeting with liaisons is 11am-1pm (it includes lunch)
  + the PM (or delegated team member) should come to the Aviation Room, by _10:50am_
  + to pick up your liaison(s) and your lunches & bring to your team's meeting room (TBA)
  + The liaison(s) will present/lead. The team also presents/leads with questions/ideas.

and other details – some small, all important!
Overview and first-week...

First Meeting With Liaison(s)

- First meeting with sponsor will be this Thursday, 11:00 AM to 1:00 PM
  - Bag lunch will be provided
  - If you have class conflicts, let your advisor know now
- One team member should come to Aviation Room to pick up bag lunches and escort liaison(s) to designated meeting area
- Liaison should give you crash introduction to project to help launch

1-2 team members, by 10:50am

Those 1-2 students bring the liaisons to a designated room, each team is assigned
For the liaison meeting

Dress Code

Business casual on Thursday & for site visits

Think of every meeting with the liaison as a form of job interview

even if they’re casual

even if you’re on another path
Preparation:

• Meet at least once before the liaison meeting

• Research the sponsor, the project, and context
  
  Be ready with questions
  Be ready with discussion directions
  Ask about preferred technologies/tools
    + ok to suggest your own
    + but be sure to get agreement!
  Be ready for administrative scheduling/organization
    + weekly calls    + fall site visit

• Create and print agendas
  
  Send with an introductory note the prior evening
Meeting expectations

Meeting Conduct

- Everyone should speak in every meeting—or imply:
  - Lack of interest
  - Lack of contributions
- Corollary: Project Manager shouldn’t do all the talking
- **Take notes** throughout meeting
  - Needed for IP records
  - Helps focus your attention

requires preparation and support
Meeting expectations

Meeting Minutes

Except for work sessions, every meeting (team, teleconference, etc.) should have minutes kept, and posted on Wiki within 24 hours
  - Rotate who takes them

Minutes must include:
  - Attendance (who was present)
    - Note late arrivals and arrival time (including advisors and liaisons)
  - What was discussed
  - What was decided
  - What was undecided or was planned for the future

*can be notebook or laptop minutes (~advisor)*
May come up:

NDAs

Many sponsors want non-disclosure agreements ("NDAs")

Most NDAs are fine **BUT** all must be approved by Clinic Director
  - Goal is to protect you from unreasonable lawyers

If you have concerns about an NDA, talk to me right away
Definitely discuss:

Site Visit

Your team will make a site visit, usually soon, to:
  ▶ Tour sponsor's facility
  ▶ Meet key people
  ▶ Learn (lots) more about the project

Scheduling is between you, your advisor, and the liaison (but is often on a Friday)

Site visits are critical; don’t miss them
  ▶ Your advisor or I will negotiate with other faculty if necessary
Site visits
Site visits
Definitely schedule:

**Weekly Teleconference**

- One call (up to 60 minutes) expected each week
- Always have written agenda, e-mailed by PM *at least* a day in advance
- Begin with each member’s progress for previous week
- Then discuss issues, risks, plans
- Finish by having each member summarize next week’s action items or tasks
  - This is critical: people need to know what they should do

*same level of professionalism  (looser dress code ~ maybe!)*

*reserve your conference room ASAP  (we have three)*
Inside a telecon...
val recos = sc.textFile("/axp/pmpshared/dpdestiny/data/hgb/post_expedia_hive_db2/warehouse/
train_expedia_5_25_capped").map(_._split("\u0001"), _._split(_._1)).map((q) => (q(1), q(2))).groupBy(_._1).map(t => t._1"" + tmp.mkString(",")
recos.saveAsTextFile("/axp/pmpshared/dpdestiny/working_dir/fp_thomas/tmp.StaticResults")

Lookalike based recommendations
---------------------------------------

/opt/mapr/spark/spark/bin/spark-submit --class "SimpleApp" --master yarn-client \
--executor-memory 5g --num-executors 100 --queue dphgb \
/axp/pmpshared/dpdestiny/scripts/hotrec_v2.jar \
-t /axp/pmpshared/dpdestiny/data/hgb/post_expedia_hive_db2/warehouse/test_expedia_5_25_10p \
-i /axp/pmpshared/dpdestiny/data/hgb/post_expedia_hive_db2/warehouse/train_expedia_5_25_capped \
-o /axp/pmpshared/dpdestiny/working_dir/fp_thomas/testOut.5_25_10p.csv \
-d /axp/pmpshared/dpdestiny/data/hgb_v2/cust_level_hotel_smith_if_treated_14 \
-s /axp/pmpshared/dpdestiny/working_dir/fp_thomas/v1.schema.csv \
-k 100 -ct bruteforce -ot metrics

-opt/mapr/spark/spark/bin/spark-submit --class "SimpleApp" --master yarn-client \
--executor-memory 5g --num-executors 100 --queue dphgb \
/axp/pmpshared/dpdestiny/scripts/hotrec_v2.jar \
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-s /axp/pmpshared/dpdestiny/working_dir/fp_thomas/v1.schema.csv \
-k 100 -ct co overtree -ot metrics
Clinic toolsets

Your Clinic Notebook

- You have an HMC notebook for Clinic
  - Number and date every page, new page per date
  - Cross out, don’t erase or scribble out
- Patents can be decide (or lost) by what is recorded in notebooks
- *Everything* about Clinic should go into notebook
  - Chronological record of your thoughts
- Notebooks are collected at end of year
  - I.e., **NOTHING ELSE** goes in notebook!
  - Electronic records should be on Trac, not your personal or clinic machines
  - I.e., **DON’T PUT CLINIC DATA ON YOUR LAPTOP!**

Popular tools: github projects, Jira, Trello, google docs, many others...

key principles: secure + archivable
Other Clinic Resources...

Email Aliases

- For sponsor “acme”, standard aliases are (16 is for 2016–2017):
  - acme16@cs.hmc.edu reaches all team members and advisor
    - For “internal only” messages
  - acme16l (“ell”, not 1) is acme16 plus liaison(s)
    - Use when liaisons need to be in discussion
  - acme16liaison will reach only the liaison(s)
  - acme16pm will reach only the project manager
  - acme16advisor will reach only the advisor

- Usually you will use acme16 or acme16l
- All aliases are automatically archived in case we need records for patent purposes, etc.
  - i.e., use them even if you’re just mailing one person (PM or advisor)

key principles: secure + archivable
Other Clinic Resources...

**Equipment**

- You have your own area and special computers on Sprague second floor.
  - Use Clinic computers for project, not your own!
- Your ID card opens SW corner stairway. Test it!

- If you need other equipment or software, tell your advisor and me as soon as you know. Don’t be shy!
- **DO NOT** appropriate equipment from other projects on the 2nd floor (or elsewhere) without asking!
  - This is an honor-code issue; people have a right to expect their equipment to be undisturbed—including apparently unused equipment and unopened boxes

Non-HMCers, please go to F&M (in Platt) to gain access – soon!

a few teams need fifth machines
About Sprague

Second floor is a secure shared area—treat it as such. Non-Clinic people (friends, relatives) are not allowed.

We provide snacks

- Limited monthly budget ($500/month for 2016–17)
- Shopping trips are assigned to teams (we have CostCo card)
- This food is for SNACKS while you’re working
  - Not for non-Clinic people
  - Not intended to substitute for meals (breakfast)

There is a vermin problem. Don’t leave empties or dirty dishes lying around.

- Clean up IMMEDIATELY after finishing food
- Don’t just put stuff in the sink

*professionalism ~ with peers as much as liaisons*
Security

More on Security

Crackers are attacking all machines on Internet, 24x7.
Your machine *will* be a target—and will be used for evil.

**ALL** accounts must have strong passwords—root, yours, git, etc.

“Strong”: not in dictionary, not in frequent-passwords list. Special characters good.
Four (truly) random English words good (see Diceware).

If you’re using Windows 10, be sure to turn off all monitoring, reporting, and “helpful” functions!

All Sprague machines have same initial password: change it **ASAP**!

key principles: **secure + archivable**
## Key Dates for 2017–2018

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Aug. 29</td>
<td>11am-12noon</td>
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<tr>
<td>Aug. 31</td>
<td>11am-1pm</td>
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<td>Sep. 1</td>
<td>by 4pm</td>
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<td>Sep. 5</td>
<td>11am-12:15pm</td>
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<td>Oct. 10</td>
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<td>Oct. 16-18</td>
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<td>Oct. 24</td>
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<td>Oct. 31</td>
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<td>Nov. 23-24</td>
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<td>Late May</td>
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<td>Late August</td>
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*If we have time... Look over the plan for the year.*
Back to the Bird’s-eye View:

Manage Your Workload

- These are team projects; you can’t do it all alone
- Distribute work to make best use of each person’s skills
  - All team members, not just PM, responsible for load balancing
- If somebody slacks off for even one week, that’s a permanently lost resource
  - You can’t make up the time later!
- Your advisor is watching but it’s your responsibility

Clinic is fundamentally a team experience
Back to the Bird’s-eye View:

We Are All In a Time Box

Clinic is **OVER** on May 4, 2018

**Don’t waste precious time waiting for:**

- **Equipment to be purchased:**
  - Ask for what you (think you) need NOW
    - Advisor can approve anything under $500.
  - Includes computers, storage, books, etc.
    - Books under $100: Don’t even ask, just do it

- **Information from liaison:**
  - Time lost getting information is gone forever
  - If they’re slow, you miss goals
  - Make sure they know that! (Remember they’re busy)

- **Work to be assigned to you:**
  - Go out and get it! (But don’t steal)

*optimize the output of your 10+ hours*
If You Have Issues

Address it right away:

- Discuss with your Project Manager, or
- Discuss with your Clinic Advisor, or
- Discuss with me (individually or in a group), or
- Talk to a professor you feel comfortable with (preferably CS)
- Do not involve the liaison in internal politics
To-do List

[Tuesday, August 29]
+ Your team should schedule a meeting with your fac. advisor
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Be ready with questions
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Ask about preferred technologies/tools
  + ok to suggest your own
  + but be sure to get agreement!
Be ready for administrative scheduling/organization
  + weekly calls  + fall site visit
"Clinic finds a way"

- M. O’Neill

Thoughts?  

You’re Clinic  ~  Have fun!