

Much material taken from or inspired by Matt Might  
and Dianne O'Leary; see last page for credits



# Grad school.

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# Two flavors of graduate school

## Flavor I: Course-oriented

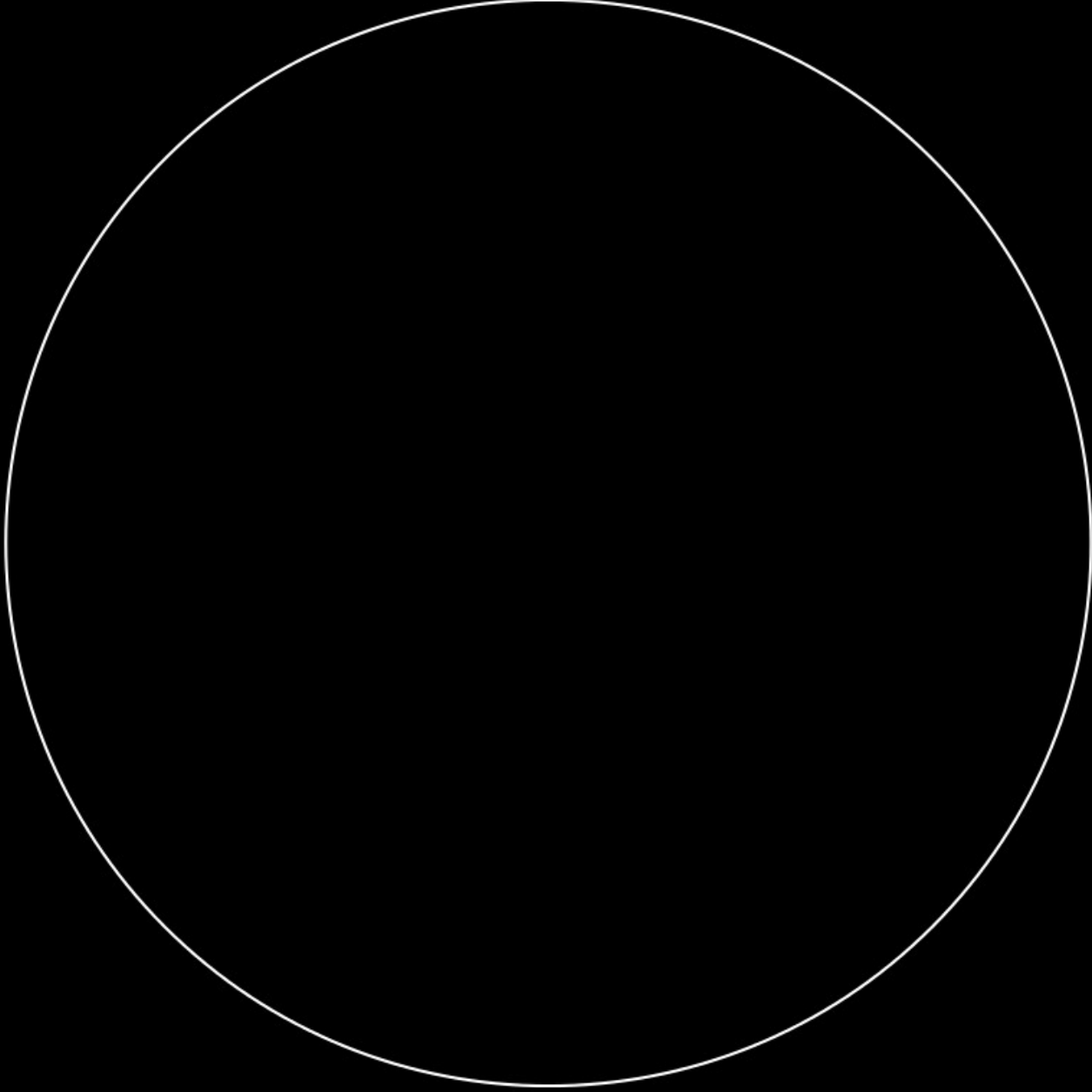
- M.S. only
- What you've been doing for 17 years
- May help you...
  - Get a better job
  - Progress further in some job
  - Make more money

## Flavor II: Research-oriented

- Available as Ph.D. or M.S.
- Fundamentally different than UG

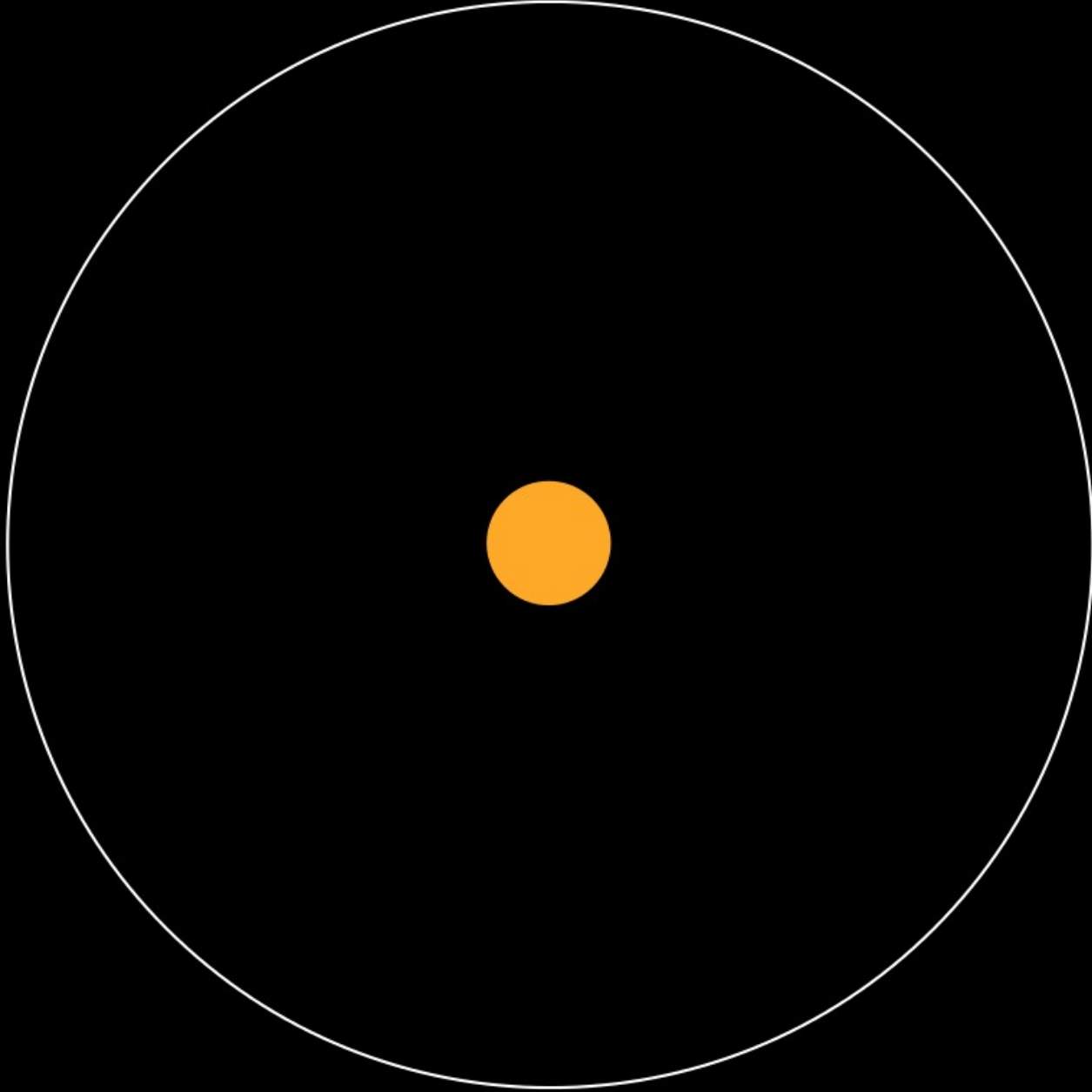
Imagine a circle that contains all human knowledge

Credit: Matt Might's Illustrated Guide to a Ph.D.  
<http://matt.might.net/articles/phd-school-in-pictures/>



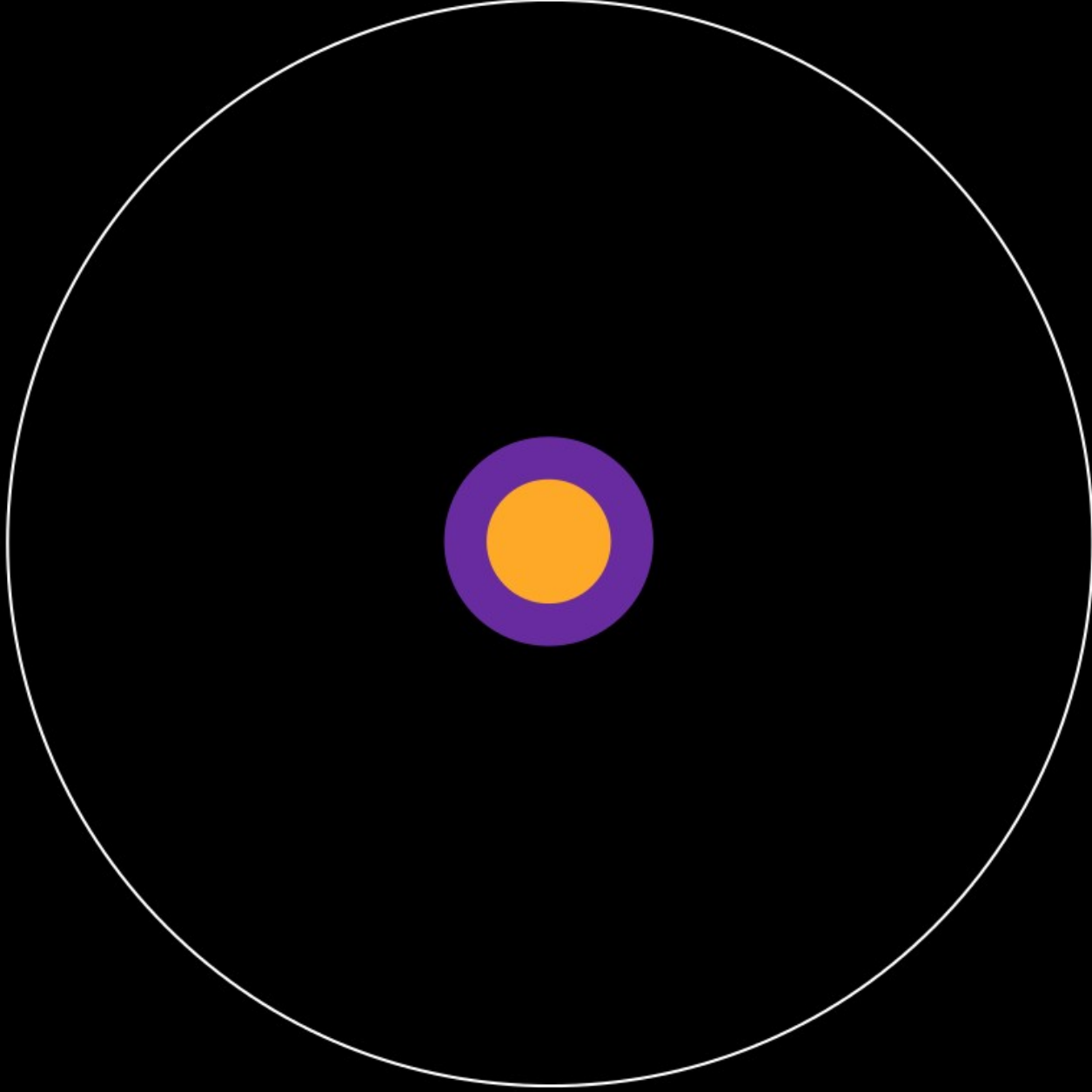
By the end of elementary school, you know a little

Credit: Matt Might's Illustrated Guide to a Ph.D.  
<http://matt.might.net/articles/phd-school-in-pictures/>



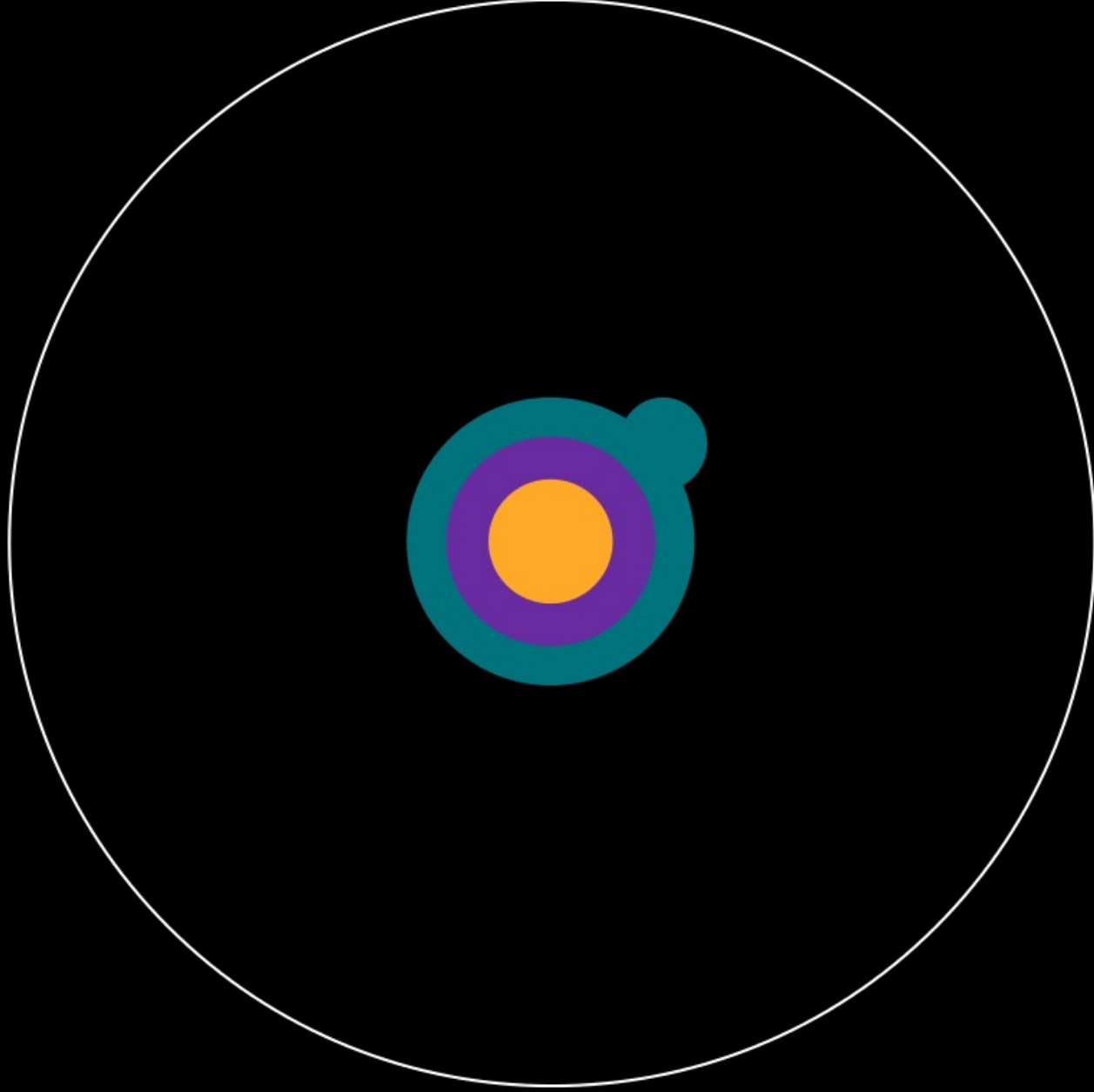
By the end of high school, you know a bit more:

Credit: Matt Might's Illustrated Guide to a Ph.D.  
<http://matt.might.net/articles/phd-school-in-pictures/>



With a bachelor's degree, you gain a specialty:

Credit: Matt Might's Illustrated Guide to a Ph.D.  
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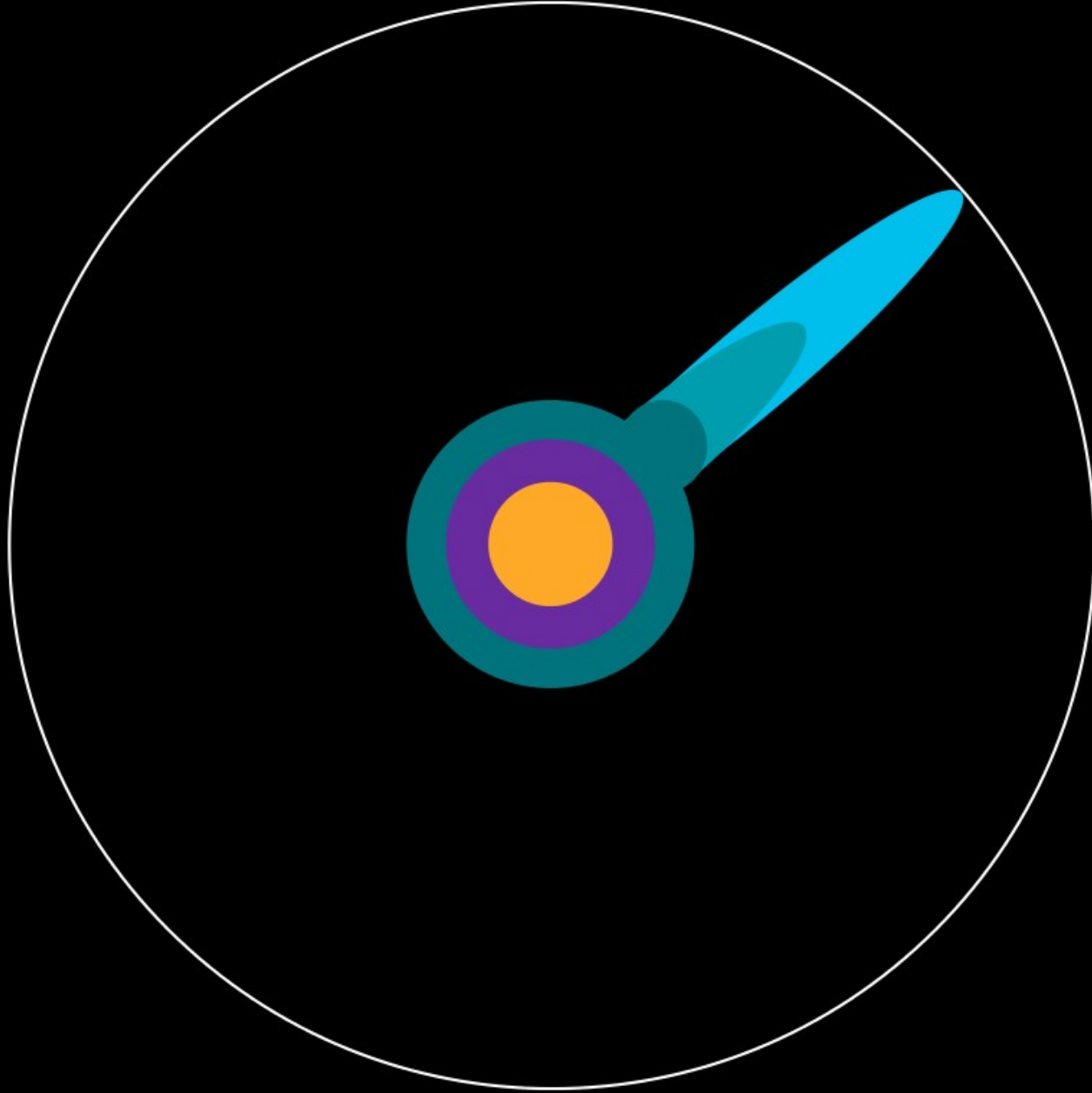
A master's degree deepens that specialty:



Credit: Matt Might's Illustrated Guide to a Ph.D.  
<http://matt.might.net/articles/phd-school-in-pictures/>

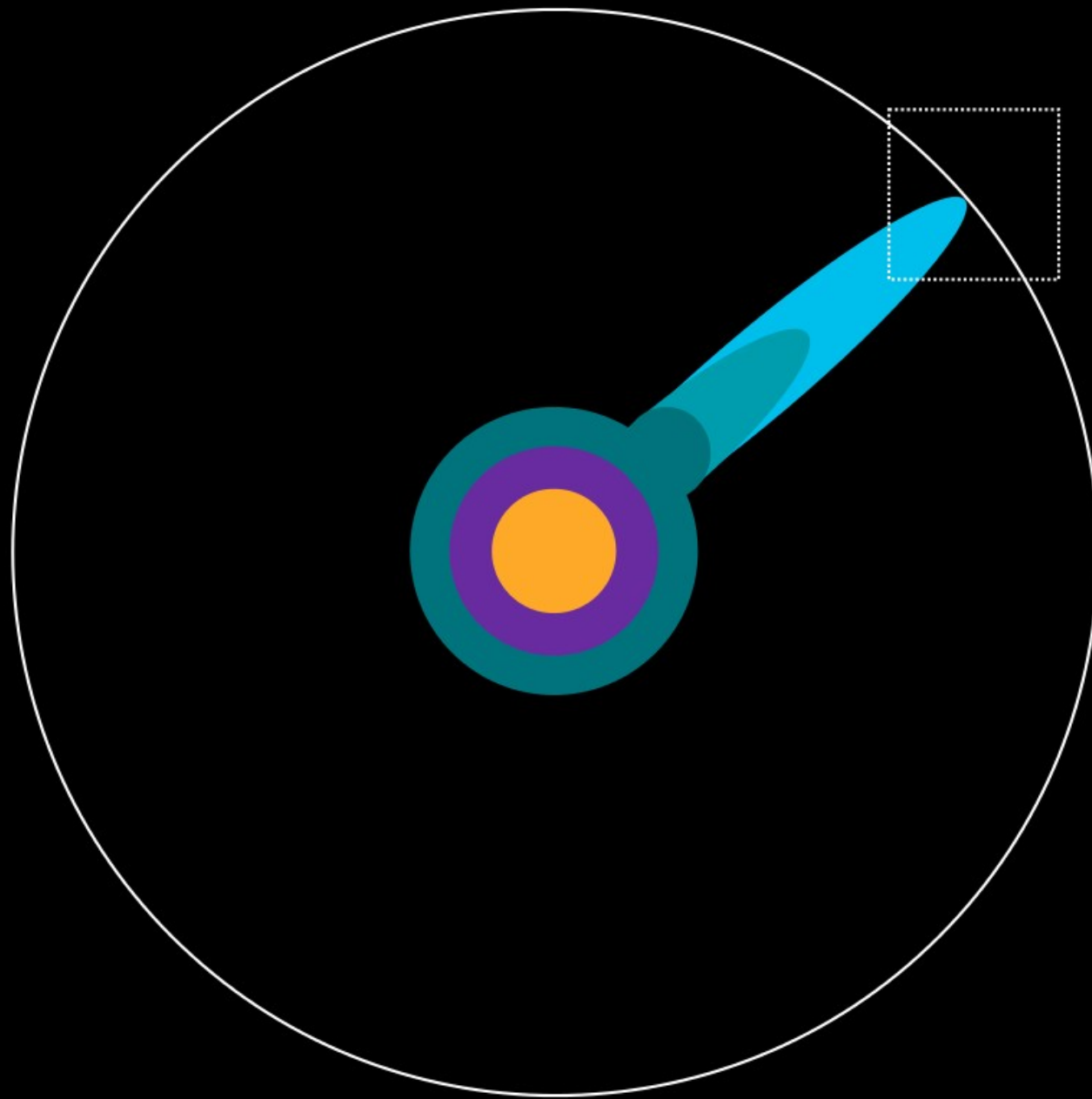
Reading research papers takes you to the edge of human knowledge:

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Once you're at the boundary, you focus:



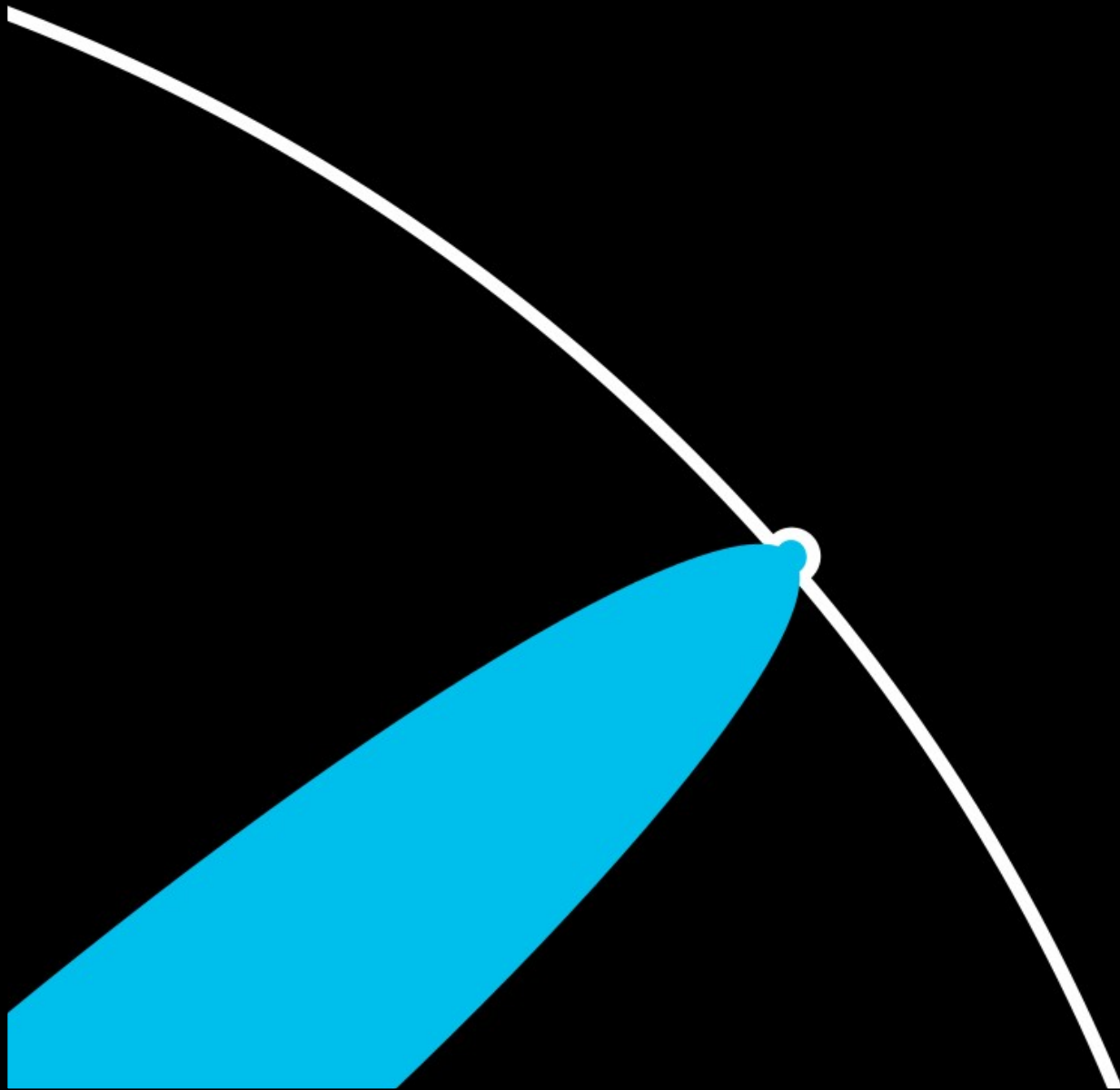
You push at the boundary for a few years:

Credit: Matt Might's Illustrated Guide to a Ph.D.  
<http://matt.might.net/articles/phd-school-in-pictures/>



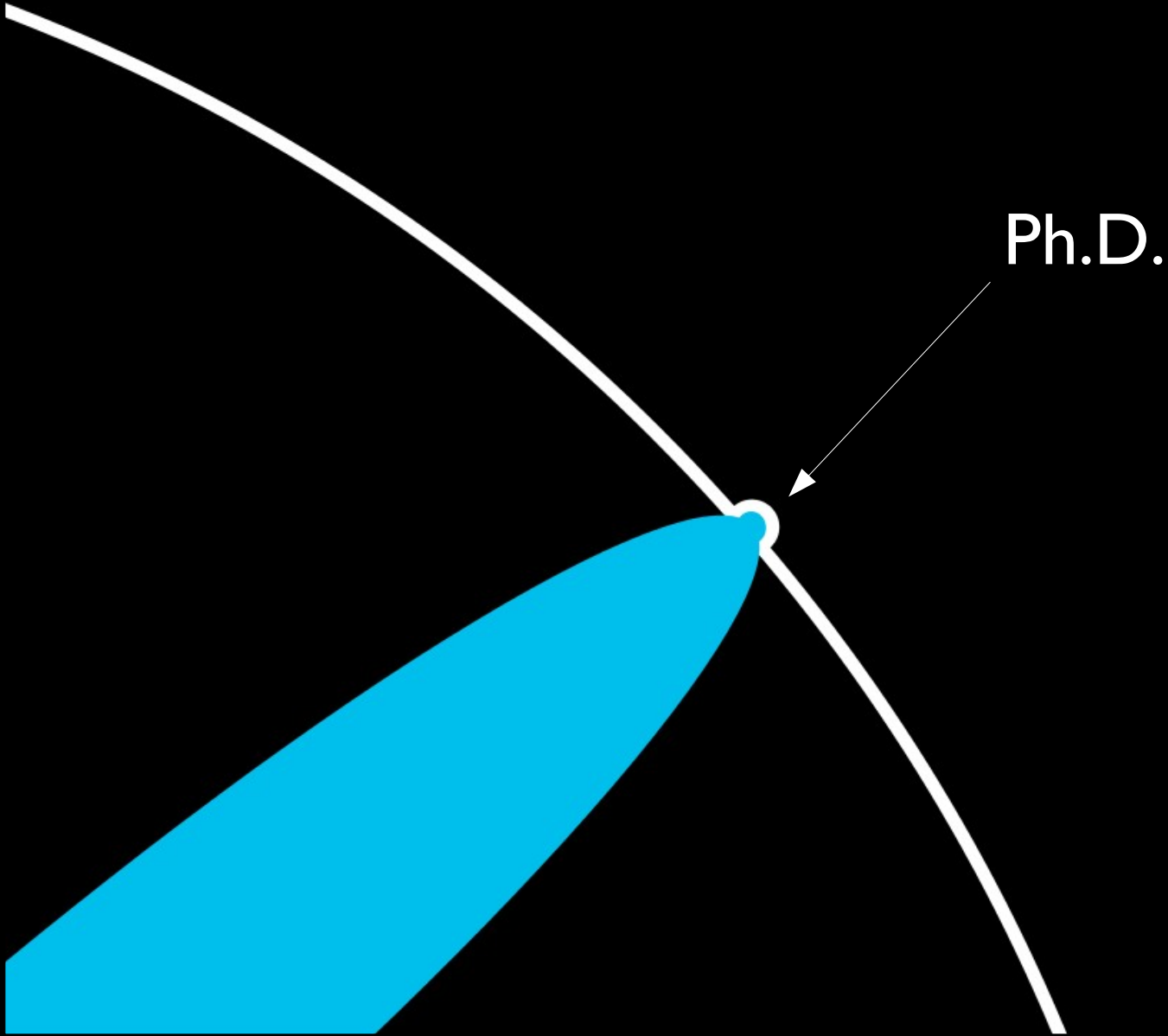
Until one day, the boundary gives way:

Credit: Matt Might's Illustrated Guide to a Ph.D.  
<http://matt.might.net/articles/phd-school-in-pictures/>



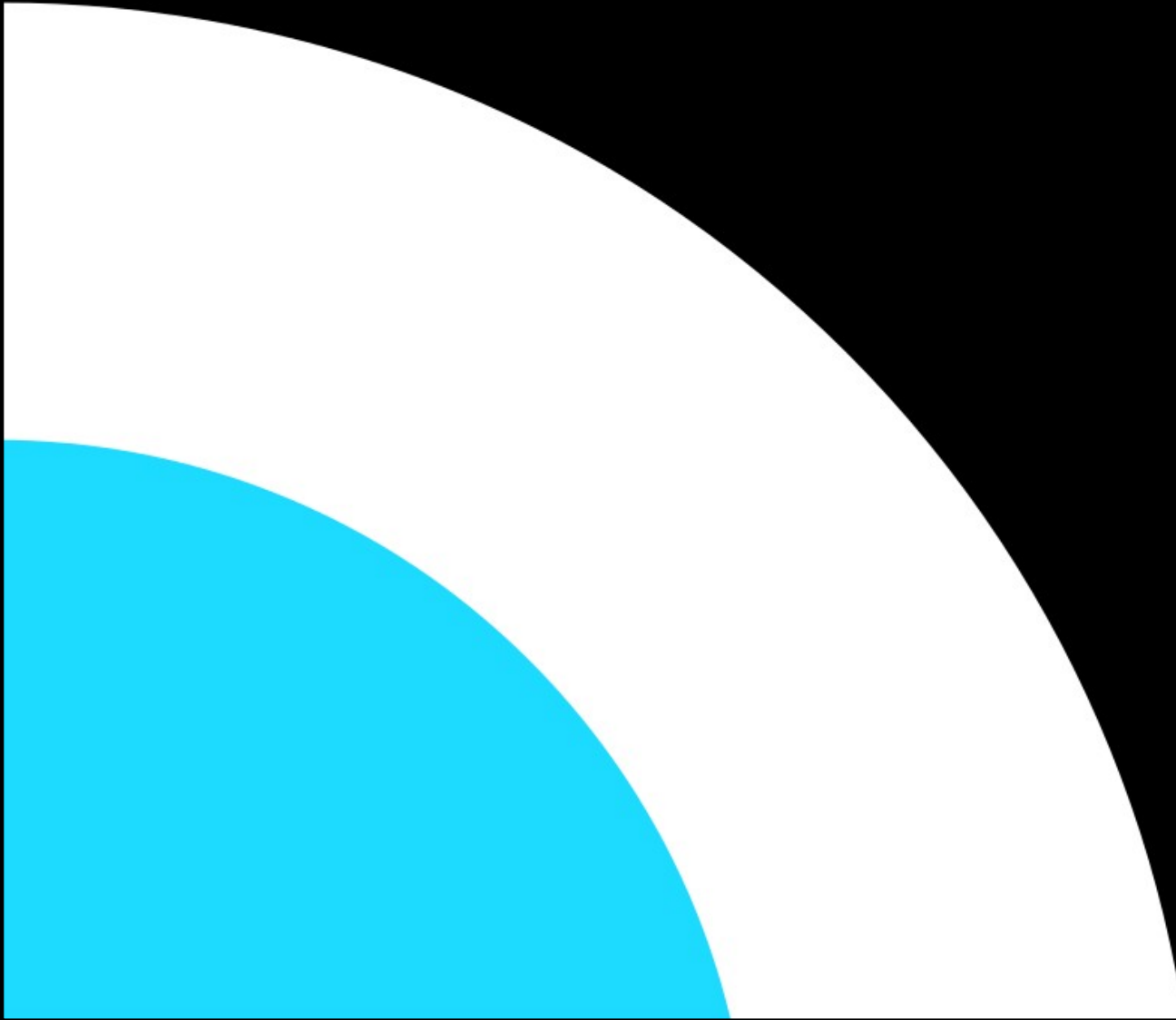
And, that dent you've made is called a Ph.D.:

Credit: Matt Might's Illustrated Guide to a Ph.D.  
<http://matt.might.net/articles/phd-school-in-pictures/>

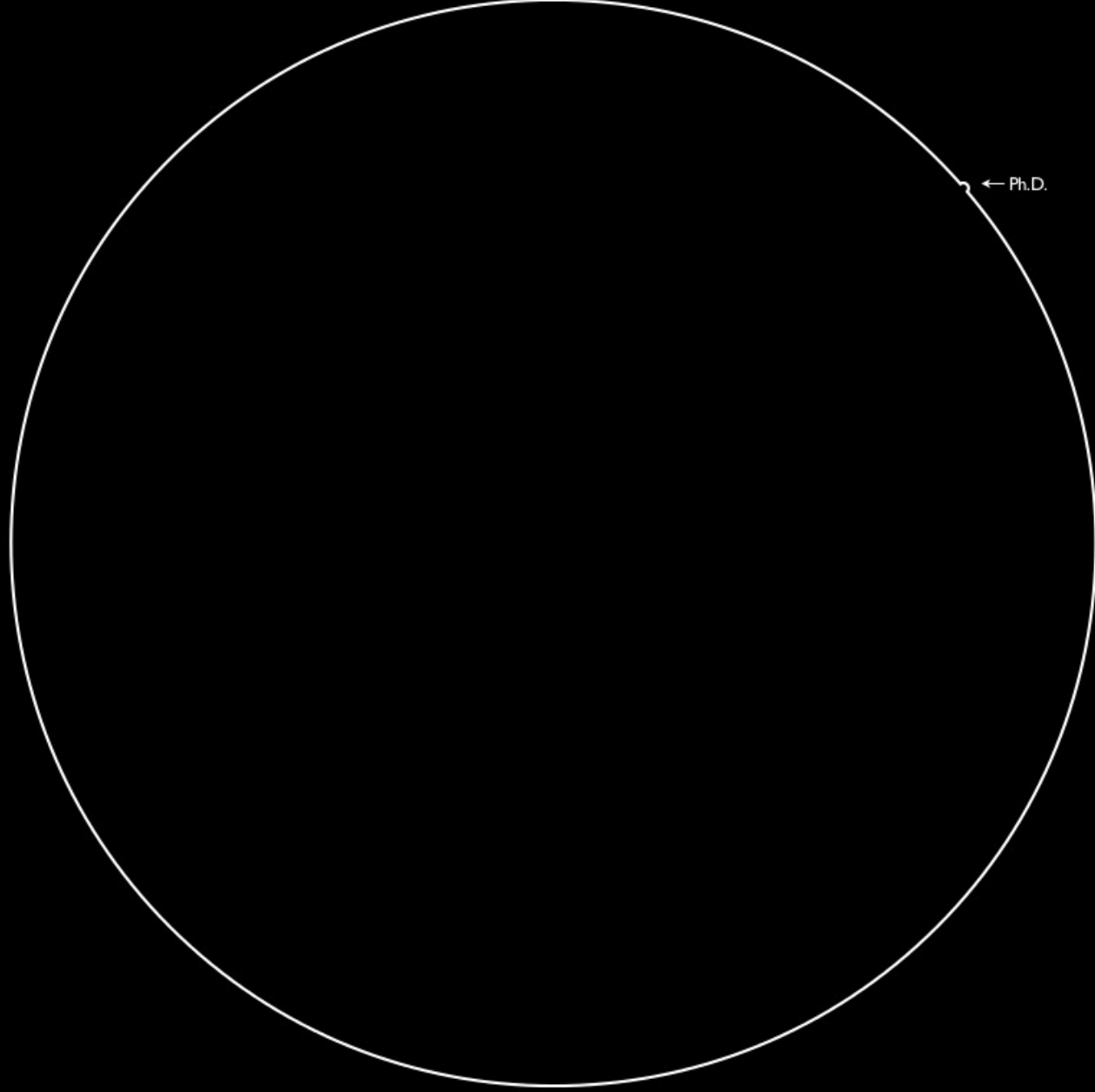


Of course, the world looks different to you now:

Credit: Matt Might's Illustrated Guide to a Ph.D.  
<http://matt.might.net/articles/phd-school-in-pictures/>



So, don't forget the bigger picture:



Credit: Matt Might's Illustrated Guide to a Ph.D.  
<http://matt.might.net/articles/phd-school-in-pictures/>

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Keep Pushing!

← Ph.D.

Why is  so great?

- You get to discover and do something no one has ever done before
- You get to contribute to human knowledge
- You get to never be able to explain to your family over Thanksgiving what you actually do



# What does it take to get a Ph.D.

- It takes a mix of:
  - Perseverance
  - Tenacity
  - Cogency
  - ...oh and some smarts (perennially overrated)
- It's not:
  - Ability to take courses/pass exams
  - \$\$\$

# Where to apply

- Anywhere you would consider going
- Easy answer is the US News top-K list
  - Booooooring!
  - (see next slide about personal statements)
- Skim proceedings of conferences
  - in the area you most care about
  - find out who does interesting work
  - apply wherever they are

# How to get in

- Demonstrate that you can do research.

# How to get in

- Demonstrate that you can do research.
- Have outstanding letters of recommendation
  - From faculty who can say specific things about you
- Write a compelling statement
  - That demonstrates your perseverance, tenacity and cogency (oh, and smarts...)
- And don't botch up the obvious things
  - Like grades, GRE scores, TOEFL, etc...

# How to get in

- Demonstrate that you can do research.

- Have

## Warning

If you ask 10 faculty members what function they use to combine different parts of applications, you will get 10 uncorrelated functions

- Write

- The

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- And don't botch up the obvious things

- Like grades, GRE scores, TOEFL, etc...

# One slide for non-seniors

- **Silver bullet to a top-K university?**
  - A published paper at a reputable venue
  - Shows you can do research
  - Will likely make  $\geq 1$  letter of rec very strong
- **But you'll still need 2 more, so get to know your professorate (we're here for you!)**
- **Get involved in research *now***
  - ... *at the very least you can find out if it's right for you!*

# Some other notes...

- Apply for fellowships
  - They give you *freedom*
  - e.g., NSF grad fellowship: deadline Nov 27
- Grad school is hard work...
  - ...but the personal rewards are great
- Contact professors you want to work with
  - But be brief, specific and intelligent (no form emails)
  - You may not hear back, but that's *okay*

# Additional resources

- Dianne O'Leary made extensive notes:
  - [www.cs.umd.edu/users/oleary/gradstudy](http://www.cs.umd.edu/users/oleary/gradstudy)
- Matt Might has some excellent guides:
  - [matt.might.net/articles/how-to-apply-and-get-in-to-graduate-school-in-science-mathematics-engineering-or-computer-science](http://matt.might.net/articles/how-to-apply-and-get-in-to-graduate-school-in-science-mathematics-engineering-or-computer-science)
  - [matt.might.net/articles/how-to-recommendation-letter](http://matt.might.net/articles/how-to-recommendation-letter)
  - [matt.might.net/articles/ways-to-fail-a-phd](http://matt.might.net/articles/ways-to-fail-a-phd)
  - [matt.might.net/articles/successful-phd-students](http://matt.might.net/articles/successful-phd-students)
- These slides: [hal3.name/ug2grad.pdf](http://hal3.name/ug2grad.pdf)