The Future of Jobs in a Disruptive World

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Dean and CEO
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Agenda

> The Shape of the Future and Jobs
> The Value of Higher Education
> About Northeastern
> Our Mission and Purpose
Problem of Perception

We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten. Don't let yourself be lulled into inaction.

Bill Gates
#future-is-disruptive
The Future of Jobs
The Year Was 1915

- Horses = 26.5 million
- Humans = 100.5 million
DISPENSE WITH A HORSE

and save the expense, care and anxiety of keeping it. To run a motor carriage costs about \( \frac{1}{2} \) cent a mile.

THE WINTON MOTOR CARRIAGE

is the best vehicle of its kind that is made. It is handsomely, strongly and yet lightly constructed and elegantly finished. Easily managed. Speed from 3 to 20 miles an hour. The hydrocarbon motor is simple and powerful. No odor, no vibration. Suspension Wire Wheels. Pneumatic Tires. Ball Bearings. \( \text{Send for Catalogue.} \)

THE WINTON MOTOR CARRIAGE CO., Cleveland, Ohio.

Price $1,000. No Agents.
The Year Is 1915

1 Million Cars
The Year Was 1915

- Horses = 26.5 million
- Humans = 100.5 million
- 1 million cars on December 10, 1915
- What career advice would you give to this guy?
The Year Is 2016

- Horses = 1 million
- Humans = 320 million
- Testing driverless cars
- What career advice would you give this guy?

5M Jobs
Economic Impact of Auto Accidents
US - Annually

• 32,000 fatalities
• 3.9 million non-fatal injuries
• 24 million cars damaged
• $897/person
• 1.8% of GDP
• 90% of accidents are due to driver error
Economic Impact of Autonomous Cars

- Car Sales
- Auto Repair
- Insurance
  Reduced insurance premiums by 50%
  You are no longer insuring the driver – then who?
- Health Care
- Roads, Bridges, etc
- Parking lots

http://www.web-strategist.com/blog
Rent A Robot Security Guard for $6.25 an Hour
#future-is-disruptive
Forces of Disruption

- Genetics, Biotechnology
- Nanotechnology
- Robotics
- Smart Systems, AI/IA
- 3D Printing
- Sensors – Big data
- Machine Learning
- Sharing Economy
The Future of Jobs

Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution

January 2016
These are the most endangered jobs

Projected percentage decline 2012-2022 (%)

- Postman: 28%
- Meter Reader: 19%
- Farmer: 19%
- Newspaper reporter: 13%
- Jeweller: 10%
- Logging worker: 9%
- Flight attendant: 7%
- Drill press operator: 6%
- Insurance underwriter: 6%
- Seamstress/Tailor: 4%

Source: CareerCast
Job families in decline and on the rise

- Architecture and Engineering
- Computer and Mathematical
- Management
- Business and Financial Operations
- Sales and Related
- Installation and Maintenance
- Construction and Extraction
- Arts, Design, Entertainment, Sports and Media
- Manufacturing and Production
- Office and Administrative

compound growth rate, 2015-2020 %
Top 10 skills

**in 2020**

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Judgment and Decision Making
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility

**in 2015**

1. Complex Problem Solving
2. Coordinating with Others
3. People Management
4. Critical Thinking
5. Negotiation
6. Quality Control
7. Service Orientation
8. Judgment and Decision Making
9. Active Listening
10. Creativity
Critical Skills for Future Success

• Greater knowledge
• More technology tools
• Ability to adapt
• Global Awareness
• Collaboration
• Soft skills
Master’s is the New Bachelor’s
FRANK AND ERNEST  Bob Thaves

SCHOOL

CAREER DAY

WHEN YOU GROW UP, WHAT DO YOU WANT TO BE IF THE JOB STILL EXISTS?
The Value of Higher Education
“If you think education is expensive, *try ignorance.*”

Derek Bok
President, Harvard University
Bay Area Graduate-Level Job Market Demand (Blue) vs. Master’s Degrees Produced (Red)
Cybersecurity jobs vacant

Of the 55 million job openings between 2010 and 2020:

- 7 million (12%), Less than a high school diploma
- 13 million (24%), High school diploma
- 10 million (18%), Some college, no degree
- 5 million (10%), Postsecondary vocational certificate*
- 13 million (24%), Bachelor’s degree
- 7 million (12%), Associate’s degree
- 6 million (11%), Master’s degree or higher
INTENSITY OF ABILITIES’ USE ACROSS ALL OCCUPATIONS

- Oral Comprehension
- Oral Expression
- Written Comprehension
- Written Expression
- Speech Clarity
- Speech Recognition
- Problem Sensitivity
- Deductive Reasoning
- Inductive Reasoning
In 2012 dollars

Median Adjusted Monthly Household Income of Households Headed by 25- to 34-Year-Olds

- **Professional & doctorate**: $10,382
- **Master’s**: $8,618
- **Bachelor’s**: $7,232
- **Associate’s**: $4,841
- **Some college**: $4,479
- **High school**: $3,937
- **Less than high school**: $3,067

http://www.pewresearch.org/fact-tank/2014/02/28/for-millennials-a-bachelors-degree-continues-to-pay-off-but-a-masters-earns-even-more/
Figure 3.
Synthetic Work-Life Earnings Estimates for Full-Time, Year-Round Workers by Educational Attainment Based on 1997-1999 Work Experience

(In millions of 1999 dollars)

- Doctoral degree: $3.4
- Professional degree: $4.4
- Master's degree: $2.5
- Bachelor's degree: $2.1
- Associate's degree: $1.6
- Some college: $1.5
- High school graduate: $1.2
- Not high school graduate: $1.0


Our Offerings
## Engineering and Computer Science

<table>
<thead>
<tr>
<th>Credential</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS Engineering Management</td>
<td>Hybrid</td>
</tr>
<tr>
<td>MS Computer Science</td>
<td>Online/Hybrid</td>
</tr>
<tr>
<td>CS ALIGN</td>
<td>Hybrid</td>
</tr>
<tr>
<td>LEVEL (Data Analytics Boot Camp)</td>
<td>In person</td>
</tr>
<tr>
<td>Certificate in Data Science</td>
<td>Hybrid</td>
</tr>
<tr>
<td>MS Project Management</td>
<td>Hybrid</td>
</tr>
<tr>
<td>MS Information Assurance</td>
<td>Hybrid</td>
</tr>
<tr>
<td>MS, Energy Systems</td>
<td>Online</td>
</tr>
<tr>
<td>MS, Information Systems</td>
<td>Online</td>
</tr>
<tr>
<td>MS Data Science</td>
<td>2017</td>
</tr>
<tr>
<td>Certificate in Robotics, IoT, and Sensors</td>
<td>2017</td>
</tr>
</tbody>
</table>
## Online Offerings

<table>
<thead>
<tr>
<th>Credential</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS, Corporate and Organizational Communication</td>
<td>✔</td>
</tr>
<tr>
<td>MS and Cert in Leadership</td>
<td>✔</td>
</tr>
<tr>
<td>MS and Cert in Project Management</td>
<td>✔</td>
</tr>
<tr>
<td>MS, Technical Communication</td>
<td>✔</td>
</tr>
<tr>
<td>MS and Cert. in HRM</td>
<td>✔</td>
</tr>
<tr>
<td>Cert. in Human Resources Management</td>
<td>✔</td>
</tr>
<tr>
<td>MBA</td>
<td>✔</td>
</tr>
<tr>
<td>MS Taxation</td>
<td>✔</td>
</tr>
<tr>
<td>MS Finance</td>
<td>✔</td>
</tr>
<tr>
<td><strong>100+ more</strong></td>
<td>✔</td>
</tr>
</tbody>
</table>
About Northeastern University

> Founded in 1898
> Global
> Co-ops
> Experiential
US News & World Report Ranking

Top 50

(last 3 years)
The Princeton Review ranked Northeastern’s career services No. 2 in the nation, the eighth consecutive year that our career services have ranked in the top four.
ENTREPRENEURIAL

#5

The Princeton Review ranked Northeastern one of the top 24 universities in the country for budding entrepreneurs.
Global Network

CAMPUSES
5

4 locations in the U.S. where working professionals can get a graduate professional degree from Northeastern aligned with employer needs.

GRADUATE PROGRAMS
125

online and on-campus advanced degree programs and certificates offered in Boston and at campuses in Charlotte, Seattle, and Silicon Valley.
Employability

JOBS IN THEIR MAJOR

89%

of 2014 graduates who are employed full time are doing work related to their major
Employability

EMPLOYED OR IN GRAD SCHOOL

90% of our graduates are employed full time or enrolled in graduate school within nine months of graduation
Northeastern University

CO-OPS

STUDENTS ABROAD

3,252

undergraduates had a global learning experience in 2014–2015

CO-OPS

10,395 placements in 2014–2015
up from 6,301 in 2006–2007

CO-OP EMPLOYERS

3,165 in the U.S. and around the world
Global Network

ALUMNI

225,000+

a worldwide community of professionals and engaged citizens in 186 countries
# About Us

## Student Body Statistics

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-Time Undergrads</td>
<td>14,135</td>
</tr>
<tr>
<td>Part-Time Undergrads</td>
<td>2,505</td>
</tr>
<tr>
<td>Male Undergrads</td>
<td>8,219</td>
</tr>
<tr>
<td>Female Undergrads</td>
<td>8,421</td>
</tr>
<tr>
<td>Total Grad Students</td>
<td>11,054</td>
</tr>
<tr>
<td>Full-Time Grad Students</td>
<td>4,895</td>
</tr>
<tr>
<td>Part-Time Grad Students</td>
<td>6,159</td>
</tr>
</tbody>
</table>
Research Institution

EXTERNAL RESEARCH FUNDING

$127.5M

in 2014–2015
Our Mission and Purpose
Our Mission and Purpose

We exist to **make a difference** in your professional lives in this very turbulent and disruptive future

- Experiential education
- A Local and Global Network
  - Business and Professional
  - 5,500 Alumni in the bay area
- **Soft Skills**
- **Keeping you relevant in Silicon Valley**
The End