

# JONATHAN MACK

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## DEGREES/CERTIFICATIONS

- MS Computer Science
- BS Aerospace Engineering
- FAA Airline Transport Pilot-Helicopter
- FAA Certificated Flight Instructor/Certificated Flight Instructor-Instrument, Helicopter
- FAA Private Pilot, Airplane Single Engine Land

## WORK EXPERIENCE

### Research Assistant 2/16 - Present

Designed, wrote, and validated code investigating multiple galaxy mergers in the Illustris cosmological simulation, and analyzed the resulting data.

*Simons Foundation*

*New York, NY*

### EMS Helicopter Pilot 1/09 - Present

Transported sick and/or injured patients from accident scenes or outlying hospitals to major hospitals. In 2009, designed and populated a normalized, base-customizable, and comprehensive database of the 200+ HealthNet Aeromedical Services helicopter landing zones, used by all eight HealthNet bases. From 2010-2012, acted as the HealthNet Safety Committee pilot representative. In 2010, designed, implemented, and maintained a spreadsheet, used at multiple bases, that determined helicopter crewmember night vision goggle currency. In 2014, acted as an observer for Air Methods' 2014 Line Operations Safety Audit.

*Air Methods Corporation*

*Various Locations*

### Web Developer/Software Engineer/Database Administrator 7/07 - Present

Designed, implemented, and maintained multiple standards-compliant websites using HTML, CSS, PHP, MySQL, and JavaScript. Designed, implemented, and maintained multiple spreadsheets and databases using Microsoft Excel and Access.

*Various clients*

*Various Locations*

### CS101 Content Developer 8/08 - 12/08

Designed and edited websites and homework/exam projects for use in West Virginia University's Introduction to Computer Applications class, which combined instruction in critical thinking skills and Microsoft Office applications (Word, PowerPoint, Excel, and Access).

*West Virginia University*

*Morgantown, WV*

### Software Engineering Intern 5/08 - 8/08

Designed and implemented a configurable database manipulation application using agile test-driven development methods for a large corporate client. Applied Java, Oracle Database Express Edition, dom4j, JUnit, and log4j technologies during implementation.

*Strictly Business Computer Systems*

*Huntington, WV*

### Graduate Research Assistant 1/07 - 12/07

Assisted a WVU Computer Science faculty member in research and report composition in a NASA-funded research project investigating software validation of spacecraft real-time operating systems.

*West Virginia University*

*Morgantown, WV*

<b>Math/Physics/Chemistry Tutor</b>	8/96 - 5/97
Tutored students, one-on-one and in groups, in college-level math (through differential equations), physics (through calculus-based sophomore-level electromagnetism and optics), and chemistry (through second-semester freshman-level general chemistry).	
<i>University of North Dakota Learning Center</i>	<i>Grand Forks, ND</i>
<b>CS101 Instructor</b>	1/06 - 12/06, 1/08 - 5/08
Developed lessons, graded homework and exams, and instructed students in multiple sections of West Virginia University's Introduction to Computer Applications class, which combined instruction in critical thinking skills and Microsoft Office applications (Word, PowerPoint, Excel, and Access).	
<i>West Virginia University</i>	<i>Morgantown, WV</i>
<b>Private Tutor</b>	4/05 - 11/10
Sole proprietor of a company that tutored students one-on-one in high school- and college-level math (through differential equations), physics (through calculus-based sophomore-level electromagnetism and optics), and chemistry (through second-semester freshman-level general chemistry).	
<i>Various Clients</i>	<i>Various Locations</i>
<b>Helicopter Tour Pilot</b>	3/05 - 10/05
Piloted a tour aircraft over the Grand Canyon, additionally acting as a supplemental tour guide to the recorded narration, to tourists from around the world, in multiple languages.	
<i>Grand Canyon Helicopters</i>	<i>Grand Canyon, AZ</i>
<b>Learning Coach (Math/Physics/Chemistry)</b>	9/04 - 12/05
Tutored students, one-on-one and in groups, in college-level math (through differential equations), physics (through calculus-based sophomore-level electromagnetism and optics), and chemistry (through second-semester freshman-level general chemistry).	
<i>Estrella Mountain Community College</i>	<i>Avondale, AZ</i>
<b>EMS Helicopter Pilot</b>	8/03 - 2/05
Transported sick and/or injured patients from accident scenes or outlying hospitals to major hospitals.	
<i>PHI, Inc.</i>	<i>Phoenix, AZ</i>
<b>Offshore Support Pilot</b>	8/01 - 7/03
Transported workers and equipment between land bases and offshore oil platforms in the Gulf of Mexico.	
<i>PHI, Inc.</i>	<i>Various Locations</i>
<b>Helicopter Pilot/Flight Instructor</b>	8/00 - 7/01
Acted as a traffic watch pilot over a large metropolitan area, and a powerline patrol pilot over both transmission and distribution lines. Conducted helicopter flight and ground training.	
<i>J.R. Aviation</i>	<i>Sellersburg, IN</i>
<b>Helicopter Pilot/Flight Instructor</b>	7/00 - 8/00
Acted as a drug interdiction pilot under contract with Ohio law enforcement. Conducted helicopter flight and ground training.	
<i>All Star Helicopters</i>	<i>Vandalia, OH</i>
<b>Helicopter Flight Instructor</b>	5/00 - 7/00
Conducted ground and flight training for national and international helicopter pilot students.	
<i>Volar Helicopter Training</i>	<i>Ft. Lauderdale, FL</i>

**Aeronautical Engineer**

9/98 - 5/00

Worked in the areas of certification, design, flight test, and weight & balance to optimize existing helicopter designs (the R22 and R44), and was involved in the earliest phases of designing a new helicopter (the R66).

*Robinson Helicopter Company*

*Torrance, CA*

**Math/Physics/Chemistry Tutor**

8/96 - 5/97

Tutored students, one-on-one and in groups, in college-level math (through differential equations), physics (through calculus-based sophomore-level electromagnetism and optics), and chemistry (through second-semester freshman-level general chemistry).

*University of North Dakota Learning Center*

*Grand Forks, ND*

**Math/Physics/Chemistry Tutor**

8/94 - 5/96, 8/97 - 5/98

Tutored students one-on-one in college-level math (through differential equations), physics (through calculus-based sophomore-level electromagnetism and optics), and chemistry (through second-semester freshman-level general chemistry).

*West Virginia University Learning Center*

*Morgantown, WV*

**Math Workshop Tutor/Assistant**

8/93 - 5/94

Assisted in grading quizzes and exams, and tutored students, in the university's pre-college algebra course.

*West Virginia University Department of Mathematics*

*Morgantown, WV*

**EDUCATION****Master of Science Computer Science**

1/06 - 12/08

3.72 GPA. Problem Report: Test-driven development of a performance-critical database record-tree balancing application.

*West Virginia University*

*Morgantown, WV*

**Commercial Aviation/Mathematics Major**

8/96 - 5/97

3.40 GPA

*University of North Dakota*

*Grand Forks, ND*

**Bachelor of Science Aerospace Engineering**

8/93 - 5/96, 8/97 - 5/98

3.45 GPA, graduated cum laude

*West Virginia University*

*Morgantown, WV*

**AVIATION FLIGHT HOURS**

Totals		By operation type		By model	
Total	3643	Mountain	1304	EC145	15
Helicopter	3522	Cross-Country	1248	EC135	608
Helicopter PIC	3454	Night	528	EC130	462
Helicopter Turbine	2041	NVG	301	AS350	382
Airplane Single Engine Land	120	Instrument-Simulated	97	B206	567
		Instrument-Actual	3	R44	54
				R22	1427
				Other	128

## **PROGRAMMING APPLICATIONS/LANGUAGES/SPECIFICATIONS**

Android, C, CSS, Fortran 77, HTML, Java (dom4j, JUnit, log4j), JavaScript, Microsoft Office (Word, Excel, PowerPoint, Access), MySQL, Oracle Database, PHP, Python, Ubuntu Linux, UML, Windows XP/Vista/7/8

**Keywords:** 135, ASEL, ATP, Airbus, BS, Bell, CFI, CFI-I, CS, Cessna, College, Degree, MS, Piper