Curriculum Vita

Name:	Timothy James Menzies
Current positions:	Full Professor, Lane Department of Computer Science and Electrical Engineering, West Virginia University.
Phone:	304-376-2859
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Address (home):	232 Hagans Str., Morgantown, WVU, USA 26501
Address (work):	Lane Department of Computer Science & Electrical Engineering, West Virginia University Morgantown, WV 26506-610
Degrees:	Ph.D. UNSW, 1995 M.CogSc UNSW, 1988 B.ComSci UNSW, 1985
Nationality:	Australian
Immigration status:	Greencard. holder
Memberships:	ACM, IEEE.

1 Career

Professor : 2012 to present
West Virginia University.

Associate Professor: 2/06 to 2012:
West Virginia University. Teaching data mining and open source software development.

Software Engineer Research Chair, NASA IV&V: 12/01 to 12/03
NASA Verification and Validation Facility http://ivv.nasa.gov, Fairmont, West Virginia, USA. In that role, I monitored and assessed research projects and proposals and taught graduate software engineering. While in that role, I introduced research quality indicators for that program and doubled the funding allocated from NASA to West Virginia University.
Reason for leaving: partner's new job was across the country in Washington.

Freelance software researcher: 1/04 to 2006:
Self-funded on grants. Working on software quality assurance issues. Taught advanced software engineering at CS, Portland State University.
Reason for leaving: the above WVU job

Research assistant professor: 7/00 to 12/01:
UBC, Vancouver, Canada. Taught undergraduate and graduate software engineering. Revised the SE teaching curriculum. Supervised a dozen masters and other student research assistants. Chaired the departmental computer committee (which entailed a total revision of the department's IT structure, staffing and resource policies).
Reason for leaving: the above NASA job.

Research Associate: 7/98 to 6/00:
NASA/WVU Independent Verification and Validation Facility. Fairmont, West Virginia, USA. I was recruited to this position from Australia. In this position, I researched optimizations to testing for real-time systems and manage NASA Fairmont's research funds for outside research groups.
Reason for leaving: uncertainty in continuation of soft money grants.

Vice- Chancellor's Research Fellow: 6/96 to 6/98:
UNSW, Sydney, Australia. I was one of the 6 accepted from 170 candidates.
Reason for leaving: the above NASA job.

Commercial object-oriented and expert system consultant: 11/86 to 6/98:
In that time I built applications and published research papers. The applications included process control, foreign exchange risk exposure management, consumer loan approval, debugging ART knowledge bases, and intelligent questionnaires, and farm management (this farm management application became Australia's first exported expert system). The publications explored logic programming techniques and practical knowledge representation tools.
Reason for leaving: the above NASA job

Lecturer, Software Development: 2/95 to 6/96:
Monash University, Caulfield, Melbourne, Australia.
Reason for leaving: sought a more research-oriented environment. Hence, moved on to the above VC research fellow's position.

Ph.D.: 4/91-2/95:
UNSW, Sydney, Australia

Newspaper editor: 4/86 to 12/86   :
Tharunka, UNSW, Sydney, Australia

Undergraduate, Computer Science: 2/82 to 12/84:
UNSW, Sydney, Australia

General nursing: 1/79 to 2/82:
Sydney, Australia

2 Teaching Experience

Lecturer-in-charge, all subject material developed by me:
- Programming languages , (2009, 2010, 2011, 2012,2013) (3rd year)
- AI , 2011,2012,2013 (4th year)
- Data mining, (2002,2003,2004,2006,2007,2008,2009,2010,2011,2012,2013) (4th year,5th year)
- AI (2008, 2009,2010,2011), 4th year, 5th year
- Search-based software engineering (2009,2012), 7th year
- Agent-oriented programming (2009), 7th year
- Open Source Software (2007), 4th years
- Lightweight Software Engineering (2004), 4th year
- Knowledge engineering (2002, 2003), 4th year
- Software V&V (2003), Masters course year
- Modelling and analysis of software (2000), 4th year.
- Domain specific languages (2001), graduate class.
- OO software development (1997-98), 200 fourth year students
- Visual programming (1996), 50 third year students
- Software engineering (1996), 150 third year students
- Research methods (1995,1996), 20 fourth year students

Lecturer-in-charge, using other people's material:
- Operating systems (2001), 60 third year students.
- Operating systems (2000), 60 third year students.
- Databases (1994), 40 third year students

Assistant lecturer:
- Knowledge engineering (1996), 40 fourth year students
- Information systems (1995), 500 first year students
- Artical intelligence (1993-1997), 180 students per year
- Software engineering (1994), 90 students

Graduate Advising

I serve(d) as the *primary advisor/committee chair* for the following students:

Degree		Locale	_Name	Area of Work	Degree Received
masters	1	WVU	David Owen	software engineering	2002
	2	UBC	Eliza Chaing	software engineering	2003
	3	UBC	Yi Hu	data mining	2003
	4	PSU	Ryan Clark	data mining	2005
	5	PSU	Jeremy Greenwald	data mining	2006
	6	WVU	Donald Boland	data mining	2007
	7	WVU	Daniel Baker	software engineering	2007
	8	WVU	Justin DiStefano	software engineering	2008
	9	WVU	Brian Sower	data mining	2008
	10	WVU	Zach Milton	data mining	2008
	11	WVU	Omid Jalali	data mining	2008
	12	WVU	Ous El-waras	data mining	2008
	13	Turkey	Ekrem Kocaguneli	software engineering	2009
	14	WVU	Adam Nelson	data mining	2010
	15	WVU	Grey Gay	data mining	2010
	16	WVU	Joe D'alessandro	software engineering	2010
	17	WVU	Andrew Matheny	software engineering	2010
	18	WVU	Fayola Peters	data mining	2010
	19	WVU	Brian Lemon	data mining	2010
	20	WVU	Adam Brady	software engineering	2011
	21	WVU	Aaron Reisbeck	Software engineering	2012
	22	WVU	Will Burney	data mining	2012
	23	WVU	Vasil Papakroni	SE	2013
		WVU	Divya Ganesan	SE	2014 (expected)
		WVU	Ben Provence	SE	2015 (expected)
		WVU	Brian Dunar	SE	2015 (expected)
phd	1	USC	Scott Chen	software engineering	2004
	2	WVU	David Owen	software engineering	2007
	3	WVU	Yue Jiang	software engineering	2009
	4	WVU	Ashutosh Nandeshwar	data mining	2011
	5	WVU	Ekrem Kocaguneli	software engineering	2012
		WVU	Abdel Salam Sayyad	SE	2013 (expected)
		WVU	Fayola Peters	data mining	2013 (expected)
		WVU	Joe Krall	gaming	2013 (expected)
		WVU	Erin Moore	data mining	2015 (expected)

3 Grants

As a PI or a Co-PI I have been involved in dozens of funded research projects since 1995, totally over $7,200,000 (in which my own share as PI came to over $4,500,000).
I have served as PI on grants from NSF, DoD, NIJ and NARA (National Archives) as well as grants from the Canadian and Australian Research Councils.

In the following tables:
- Current projects are marked as gray cells.
- Column "C" refers to just the expenditures on research of T. Menzies.
- Column "E" is the total of all grants with T. Menzies as PI or a Co-PI.

start	finish	Funding agency	Name	grant: sole PI	co-PI (expended by TM:)	Resaercg expenditure	Grants- Co-PI (total)	Resaerch expenditure
				A	B	C=A + B	D	E=A+D
2013	2017	NSF	Transfer Learning in SE		622,030	622,030	529,773	$1,151,803
2013	2014	NASA (JPL)	Effort estimation	47,000		47,000		$47,000
2012	2016	USDA	Early Childhood Obesity Program	$133,526		$133,526		$133,526
2012	2013	NSF	New directions in AI and SE	$14,700		$14,700		$14,700
2010	2012	Dod STTRv)	Active Learning	$230,514		$230,514		$230,514
2010	2014	NSF (CISE)	Better Understanding of SE data		$249,500	$249,500	$499,000	$748,500
2010	2012	Qatar Resarch	Int Center of Excellence in SE		$98,125	$98,125	$196,250	$294,375
2010	2011	CITRE	Border Crossing	$70,000		$70,000		$70,000
2010	2011	National Forensics	Overcoming Brittleness	$35,721		$35,721		$35,721
2009	2010	National Archives	STEP Research		$209,000	$209,000	$418,000	$627,000
2008	2009	National archives	STEP research		$143,500	$143,500	$574,000	$717,500
2008	2011	NSF (CISE)	Automatic Quality Assessment		$180,000	$180,000	$360,000	$540,000
2008	2009	National Forensics	Conclusion stability	$80,000		$80,000		$80,000
2008	2008	NASA	Understanding Anomalies.	$58,000		$58,000		$58,000
2008	2008	NASA	Crystal Ball.	$55,000		$55,000		$55,000
2008	2008	NASA	Advanced UML modeling.	$50,000		$50,000		$50,000
2007	2008	NASA	Applied Technology Lab	$95,551		$95,551		$95,551
2007	2008	Dod STTRv	Next generation metrics: phase 1	$40,715		$40,715		$40,715
2007	2007	NASA	WVU Liaison	$39,707		$39,707		$39,707
2007	2008	Industrial	Analysis metrics (Galaxy Global)	$25,000		$25,000		$25,000
2007	2008	National archives	STEP research	$15,482		$15,482		$15,482
2006	2007	NASA	Learning software process model	$113,255		$113,255		$113,255
2006	2007	NASA	Improving IV&V Techniques	$107,990		$107,990		$107,990
2006	2006	NASA	co-op agreement, supplemental funds		$14,916	$14,916	$59,665	$74,581
2006	2006	NASA	co-op funds for Eisland Hall Lab	$30,000		$30,000		$30,000
			sum (2006 to 2011)	$1,242,161	$1,517,071	$2,759,232	$2,636,688	$5,395,920
2005	2005	NASA	How to Argue Less:	$260,000		$260,000		$260,000
2005	2005	NASA	Spectrum of Model Checking Methods	$160,000		$160,000		$160,000
2005	2005	NASA	Risk/Cost models for Autonomy	$160,000		$160,000		$160,000
2005	2005	NASA	How much will it cost?	$122,161		$122,161		$122,161
2005	2005	NASA SBIT	Intelligent Vehicle Health Management:	$65,000		$65,000		$65,000
2004	2004	NASA	Spectrum of Model Checking Methods	$160,000		$160,000		$160,000
2004	2005	NASA	A next-generation testable language	$70,000		$70,000		$70,000
2004	2004	NASA	The research rover	$48,000		$48,000		$48,000
2003	2005	NASA	Understanding models better,	$107,000		$107,000		$107,000
2003	2003	NASA	Model checking & procedural languages	$50,000		$50,000		$50,000
2003	2003	NASA	See more! Learn more! Tell more!	$47,000		$47,000		$47,000
2002	2003	NASA	A spectrum of IV&V techniques	$200,000		$200,000		$200,000
2002	2002	NASA	Better risk modelling	$27,000		$27,000		$27,000
2001	2001	NASA	Tree query languages	$27,000		$27,000		$27,000
2000	2000	Canada Res. Coun.	NSERC grant	$81,000		$81,000		$81,000
1998	1999	NASA	High Quality Knowledge Initiative	$110,000		$110,000		$110,000
1997	1998	Aust. Res. Coun	Abduction for software engineering	$10,000		$10,000		$10,000
1996	1998	UNSW	Vice-Chancellor's Research Fellowship	$135,000		$135,000		$135,000
			Total (1996 to 2005)	$1,839,161	$0	$1,839,161	$0	$1,839,161

4 Professional Service

Since 1987, published 232 referred articles (see §6) including 55 international referred journal articles.

Currently:
- Associate editor,
  - IEEE Transactions on Software Engineering,
  - Automated Software Engineering Journal
  - Empirical Software Engineering Journal
- Steering committee member:
  - IEEE Automated Software Engineering,
  - Data Analysis Patterns for Software Engineering (DAPSE)
- Co-PC chair
  o ICSE 2015 NIER (new ideas & emerging research)
- PC member:
  o Large meetings:
    ▪ MSR'14, ICSE14-demos, ICSE14-mainConference,
  o Smaller meetings:
    ▪ DAPSE'14, EASE'14, GTSE'14, SAM 2014, SEAA 2014,
- Guest editor (in progress):
  o Special issue, best papers from ASE'11 and ASE'12 for Automated Software Engineering (to appear).
  o Special issue, best papers from RAISE'13, Automated Software Engineering (to appear)
- Editor, two books on analyzing software data (2014, to appear)
  o Analyzing software data, Morgan Kaufmann,
    ▪ co-edited with Tom Zimmermann and Christian Bird
  o Data Science for Software Engineering, Morgan Kaufmann
    ▪ co-edited with Burak Turhan, Ayse Bener, Leandro Minku,

Previously:
- Steering committee chair, PROMISE 2012, PROMISE 2010, PROMISE'11
- Co-chair:
  o IEEE ASE 2012
  o PROMISE   2010,2009,2008,2007,2006,2005
- PC member:
  - Mining Software Engineering 2013, 2012, '2011
  - IEEE Automated Software Engineering (2013,2012,2011,2010,2009, 2008,2007,2005, 2004, 2003, 2002)
  - Empirical Software Engineering and Measurement '2012 '2011, 2013
  - SAM2103,
  - DAPSE'13
  - ICSE'13: demos
  - ASE-Tools'13
  - ISSRE'13
  - GTSE'13
  - MALIR'13
  - Software Mining -2012, 2013
  - RAISE'12, RAISE'13
  - FSE New ideas'11,
  - Software engineering week, 2011,
  - Spark'11
  - IEEE International Symposium on Software Reliability Engineering (2010,2009);
  - Pacific Knowledge Acquisition Workshop, 2009,2008
  - LSO (learning software organizations), 2008
  - Traceability in Emerging forms of SE , 2007
  - International Workshop on Living with Uncertainty (2007)
  - IEEE conference on high assurance software engineering (2007, 2004);
  - 17th International Conference on Automated Planning & Scheduling (2007)
  - MoChArt '05 (model checking and AI)

- • IEEE NASA Software Engineering Workshop (2003)
- • IEEE Metrics 2003;
- • Numerous other PCs since 1991 including
  - • 8 international conferences
  - • 16 international workshops,
  - • 5 Australian national workshops.
  - • Organizing committee member for 2 international workshops, 4 national conferences and workshops.
- • Guest editor:
  - o Special Issue, IEEE Software, "Software Analytics, So What?", May 2013
  - o Special Issue, IEEE Software, "Many faces of Software Analytics", Sept 2013.
  - o Special Issues, Information and Software Technology, Best papers from PROMISE'11, 55(8), 2013.
  - o Special Issue, Empirical Software Engineering, Best papers, PROMISE'10, 18(3) 2013
  - o Special Issue, Automated Software Engineering, "Learning to Organize Testing", 19(2), 2012.
  - o Special Issue, Empirical Software Engineering, Jan 2012, "Conclusion Stability in SE"
  - o Special Issue, Best papers RAISE 2012, Software Quality Journal
  - o Special issue: Journal of Automated Software Engineering, ' "Repeatable Experiments in Effort Estimation", 2010;
  - o Special issue: Journal of Empirical Software Engineering, ' "IR for Program Comprehension", 2009;
  - • Special issue: Journal of Empirical Software Engineering, ' "Repeatable Experiments in SE", 2008;
  - • Special issue, Requirements Engineering Journal, "Model-based requirements engineering", 2003.
  - • Special issue of IEEE Intelligent Systems, "AI's Second Century", 2003.
  - • Two special issues of the International Journal of Human Computer Studies (IJHCS), 1998, 1999.
  - • Co-founder of the WISE (workshop on intelligent software engineering) and MBRE (model-based requirements engineering) series.
  - • Reviewer, international referred journals including CACM, IJHCS, Informaticia, IEEE Transactions on Software Engineering. Journal of Logic Programming, IEEE Software.

5 Awards and Rankings

Awards
From WVU: 2010: WVU CEMR college Outstanding Researcher
From NASA: 2004: Commendation, from NASA's Chief of Mission Assurance (see p23)
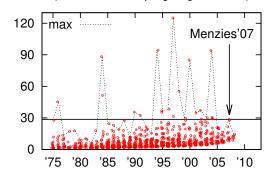**From UNSW:**
- 1996, 1997: Vice- Chancellors Research Fellow (I was one of the 6 accepted from 170 candidates).
- 2006: Best paper, International conference Society of Parametric Analysis: "Do We Really Understand Cost Model Performance?". With Karen Lum and Jairus Hihn.
- 1994: Best student paper, Banff Knowledge Acquisition Workshop, "Knowledge Acquisition for Performance Systems; With Paul Compton.

Rankings (as of Oct 25, 2013),

Website:	Microsoft Academic Search academic.research.microsoft.com	Artnetminer artnetminer.org
Query:	Software engineering last 5 year	Experts ranked by H-index, software engineering
Rank:	#38 out of 54,273	#38 out of 7144
Ranked by:	number of in-domain citations, h-indenx	h-index (the "h" papers with at least "h" citations)

My 2007 paper in IEEE TSE paper "Data mining static code attributes to learn defect predictors " (with J. Greenwald and A. Frank), 33(1) is **the most cited paper for the period 2006 to 2013** in IEEE Transactions on Software Engineering (which is the top journal in this field). This paper established baseline results and experimental procedures that have become standard in this field. Further, measured in terms of average number of citations per year since publications, the figure at right shows this as one of the **top 25 papers ever published** in IEEE Trans on SE since 1975.

IEEE Trans SE, top 1000 most-cited articles
(data source: http://goo.gl/FNU4Rt)

My 2009 paper in "On the relative value of cross-company and within-company data for defect prediction Menzies. T. with Turhan, B.; Menzies, T.; Bener, A.B.; Di Stefano, J. (Empirical Software Engineering, 14, 5, 2009) is the **third most cited paper ever published** in that journal, in the last five years**.** In this paper, Dr. Menzies showed that it is possible to apply patterns of software defects learned in one organization to another. This was the first such paper to offer conclusive demonstrate that this was possible while, at the same time, showing why prior work had failed to achieve this result.

6 Publications

55	Journal papers
102	**Conference papers**
10	**Book chapters**
17	**Editorials**
65	**International workshop papers**
232	**Total (refereed) + 17 editorials = 249**

6.1 Journal Papers (55)

1. Fayola Peters, Tim Menzies, Liang Gong, Hongyu Zhang: Balancing Privacy and Utility in Cross-Company Defect Prediction. IEEE Trans. Software Eng. 39(8): 1054-1068 (2013)
2. Tim Menzies, Andrew Butcher, David R. Cok, Andrian Marcus, Lucas Layman, Forrest Shull, Burak Turhan, Thomas Zimmermann: Local versus Global Lessons for Defect Prediction and Effort Estimation. IEEE Trans. Software Eng. 39(6): 822-834 (2013)
3. Ekrem Kocaguneli, Tim Menzies, Jacky Keung, David R. Cok, Raymond J. Madachy: Active Learning and Effort Estimation: Finding the Essential Content of Software Effort Estimation Data. IEEE Trans. Software Eng. 39(8): 1040-1053 (2013)
4. Ekrem Kocaguneli, Tim Menzies: Software effort models should be assessed via leave-one-out validation. Journal of Systems and Software 86(7): 1879-1890 (2013)
5. Ekrem Kocaguneli, Tim Menzies, Jacky W. Keung: Kernel methods for software effort estimation - Effects of different kernel functions and bandwidths on estimation accuracy. Empirical Software Engineering 18(1): 1-24 (2013)
6. Jacky Keung, Ekrem Kocaguneli, Tim Menzies: Finding conclusion stability for selecting the best effort predictor in software effort estimation. Autom. Softw. Eng. 20(4): 543-567 (2013)
7. Markus Lumpe, Rajesh Vasa, Tim Menzies, Rebecca Rush, Burak Turhan:Learning Better Inspection Optimization Policies. International Journal of Software Engineering and Knowledge Engineering 22(5): 621-644 (2012)
8. Ekrem Kocaguneli, Tim Menzies, Ayse Bener, Jacky W. Keung: Exploiting the Essential Assumptions of Analogy-Based Effort Estimation. IEEE Trans. Software Eng. 38(2): 425-438 (2012)
9. "On the Value of Ensemble Effort Estimation" by E. Kocaguneli and Tim Menzies and J. Keung. IEEE Transactions on Software Engineering,2011 . 38(6): 1403-1416 (2012)
10. J. Krall and T.J. Menzies, "Aspects of Replayability and Software Engineering: Towards a Methodology of Developing Games" Journal of Software Engineering and Applications 5 (7), 459-466, 2012
11. H. H. Ammar and T. Menzies and O. Shata and A. Erradiand M. Kessentini and W. Abdelmoez and , M. Kholief and M. Shaheen and M. Abdelhamid, and A AbdelHamid and M.A. Omar and Mohamed Salah Hamdi. "The International Center of Excellence in Software Engineering" *Communications of the Arab Computer Society*, Vol. 4 No.2, December, 2011
12. Exploring the Effort of General Software Project Activities with Data Mining" by Topi Haapio and Tim Menzies. International Journal of Software Engineering and Knowledge Engineering pages 725-753 2011.
13. "Learning patterns of university student retention" by Ashutosh Nandeshwar and Tim Menzies and Adam Nelson. Expert Systems with Applications , volume 38, number 12, pages 14984 – 14996, 2011 .
14. "What is Enough Quality for Data Repositories?" by Tim Menzies and Adam Brady and Ekrem Kocaguneli. Software Quality Professional, volume 13, number 3, 2011 .
15. A. Tosun and A. Bener and B. Turhan and T. Menzies, "Practical considerations in deploying statistical methods for defect prediction: A case study within the Turkish telecommunications industry" by Information and Software Technology pages 1242-1257 2010 . Available from http://menzies.us/pdf/10practical.pdf .
16. T.J. Menzies and Z. Milton and B. Turhan and B. Cukic and Y. Jiang and A. Bener , "Defect Prediction from Static Code Features: Current Results, Limitations, New Approaches" in Automated Software Engineering December 2010 . Available from http://menzies.us/pdf/10which.pdf .

17. Adam Nelson, Tim Menzies, Gregory Gay, "Sharing Experiments Using Open Source Software" in Software- Practice and Experience September 2010 . Available from http://menzies.us/pdf/10ourmine.pdf .

18. Tim Menzies and Omid Jalali and Jairus Hihn and Dan Baker and Karen Lum, "Stable Rankings for Different Effort Models" by. Automated Software Engineering December 2010 . Available from http://menzies.us/pdf/10stable.pdf .

19. Adam Brady and Tim Menzies and Oussama El-Rawas and Ekrem Kocaguneli and Jacky Keung, "Case-Based Reasoning for Reducing Software Development Effort" in Journal of Software Engineering and Applications 2010 . Available from http://menzies.us/pdf/10w0.pdf .

20. Oussma El-Rawas and Tim Menzies, "A Second Look at Faster, Better, Cheaper" in.Innovations Systems and Software Engineering pages 319-335 2010 .

21. Gregory Gay and Tim Menzies and Misty Davies and Karen Gundy-Burlet, "Automatically finding the control variables for complex system behaviour" in Automated Software Engineering December 2010 . Available from http://menzies.us/pdf/10tar34.pdf. .

22. James H. Andrews and Tim Menzies and Felix Li , "Genetic Algorithms for Randomized Unit Testing" in IEEE Transactions on Software Engineering March 2010 . Available from http://menzies.us/pdf/10nighthawk.pdf .

23. T. Menzies and S. Williams and O. Elrawas and D. Baker and B. Boehm and J. Hihn and K. Lum and R. Madachy, "Accurate Estimates Without Local Data?" Software Process Improvement and Practice pages 213-225 July 2009 . Available from http://menzies.us/pdf/09nodata.pdf .

24. G. Gay and T. Menzies and O. Jalali and G. Mundy and B. Gilkerson and M. Feather and J. Kiper, "Finding robust solutions in requirements models" , Automated Software Engineering December 2009 . Available from http://menzies.us/pdf/09keys2.pdf

25. T. Menzies and O. Mizuno and Y. Takagi and Y. Kikuno, "Explanation vs Performance in Data Mining: A Case Study with Predicting Runaway Projects" by Journal of Software Engineering and Applications pages 221-236 November 2009.

26. B. Turhan, T. Menzies, A. Bener, and J. Distefano. On the relative value of cross-company and within-company data for defect prediction. Empirical Software Engineering, 2009. Available from http://menzies.us/pdf/08ccwc.pdf.

27. T. Menzies, M. Benson, K. Costello, C. Moats, M. Northey, and J. Richarson. Learning better IV&V practices. Innovations in Systems and Software Engineering, March 2008. Available from http://menzies.us/pdf/07ivv.pdf.

28. M. Feather, S. Cornford, K Hicks, J. Kiper, and T. Menzies. Application of a broad-spectrum quantitative requirements model to early-lifecycle decision making. IEEE Software, May 2008. Available from http://menzies.us/pdf/08ddp.pdf.

29. Tim Menzies, Jeremy Greenwald, and Art Frank. Data mining static code attributes to learn defect predictors. IEEE Transactions on Software Engineering, January 2007. Available from http: //menzies.us/pdf/06learnPredict.pdf.

30. Tim Menzies, Alex Dekhtyar, Justin Distefano, and Jeremy Greenwald. Problems with precision. IEEE Transactions on Software Engineering, September 2007. http://menzies.us/pdf/ 07precision.pdf.

31. T. Menzies and Y. Hu. Just enough learning (of association rules): The TAR2 treatment learner. In Artificial Intelligence Review, 2007. Available from http://menzies.us/pdf/07tar2. pdf.

32. T. Menzies, D.Owen, and J. Richardson. The strangest thing about software. IEEE Computer, 2007. http://menzies.us/pdf/07strange.pdf.

33. Tim Menzies, Zhihao Chen, Jairus Hihn, and Karen Lum. Selecting best practices for effort estimation. IEEE Transactions on Software Engineering, November 2006. Available from http://menzies.us/pdf/06coseekmo.pdf.

34. T. Menzies and J. Richardson. Making sense of requirements, sooner. IEEE Computer, October 2006. Available from http://menzies.us/pdf/06qrre.pdf.

35. T. Menzies and J. Hihn. Evidence-based cost estimation for better quality software. IEEE Software, July/August 2006. Available on-line at http://menzies.us/pdf/06costs.pdf.

36. T. Menzies and C. Pecheur. Verification and Validation and Artificial Intelligence. In M. Zelkowtiz, editor, Advances in Computing, volume 65. Elsevier, 2005. Available from http://menzies. us/pdf/04aivv.pdf.

37. T. Menzies, R. Gunnalan, K. Appukutty, Srinivasan A, and Y. Hu. Learning tiny theories. In International Journal on Artificial Intelligence Tools (IJAIT), to appear,

2005. Available from http://menzies.us/pdf/03select.pdf.

38. Zhihao Chen, Tim Menzies, Dan Port, and Barry Boehm. Finding the right data for software cost modeling. IEEE Software, Nov 2005.

39. T.J. Menzies, R.F. Cohen, S. Waugh, and S. Goss. Applications of abduction: Testing very long qualitative simulations. IEEE Transactions of Data and Knowledge Engineering, pages 1362– 1375, November/December 2003. Available from http://menzies.us/pdf/97iedge. pdf.

40. T. Menzies and J.S. Di Stefano. More success and failure factors in software reuse. IEEE Transactions on Software Engineering, May 2003. Available from http://menzies.us/pdf/02sereuse.pdf.

41. T. Menzies and Y. Hu. Data mining for very busy people. In IEEE Computer, November 2003. Available from http://menzies.us/pdf/03tar2.pdf.

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7 Testimonials

7.1 Testimonials from NASA Civil Servants

7.1.1 Brian O'Conner, Astronaut

Mr Brian O'Conner is a former Space Shuttle pilot and mission commander for the 1985 STS-81B mission and the 1991 STS-40 mission. Until his recent retirement, Mr. O'Connor was NASA's Chief of Safety and Mission Assurance. That office has functional responsibility for the safety, reliability, maintainability and quality assurance of all NASA programs.

National Aeronautics and
Space Administration

Headquarters
Washington, DC 20546-0001

August 17, 2004

Safety and Assurance Requirements Division

Dr. Brian Woerner
Department Chair
West Virginia University
Computer Science and Electrical Engineering
P.O. Box 6109
825 Engineering Sciences Building
Morgantown, WV 26506-6109

Dear Dr. Woerner:

I appreciate the support Dr. Tim Menzies has provided over the past 3 years for the NASA Office of Safety and Mission Assurance's Software Assurance Research Program (SARP). Tim has provided a great spark of innovation to the SARP, inspiring both researchers and the program itself. A great researcher in his own right, Tim has never stinted in helping others to achieve their best for the program. Quick to think of and act on improvements, Tim has helped make the SARP program an exceptional research program within NASA. He has done this by raising the bar on the quality and level of work we expect from our researchers. Promoting both outside journal publications as well as technological transfer within and outside NASA, Tim has helped shape the research and the results of the SARP.

Tim's support of the Software Assurance Research Program has been critical to its success. Please convey my thanks to Tim for a job well done.

Cordially,

Bryan O'Connor
Chief Safety and Mission Assurance Officer

cc:
HQ/QS/M. Wetherholt
IV&V/K. McGill
Portland State University/C. Brown
West Virginia University/T. Menzies

7.1.2 Nelson Keeler, Director, IV&V

Dr. Nelson Keeler was director of the NASA software IV&V facilty, Fairmont West Virginia, 2002 to 2006.

I write as director director of the NASA Software Independent Verification and Validation (IV&V) facility at Fairmont West Virginia. IV&V is NASA's software watchdog and has an audit role for software built by NASA across the country. One of our duties at IV&V is to manage NASA's Software Assurance Research Program (SARP).

Dr. Menzies was our research chair to the SARP program for the period 2000 to 2002. We worked closely together and I had many opportunities to see him in action. I saw him:

- *Working with students* from West Virginia University (WVU). He was adept at training and guiding the WVU students on industrial-based research programs. He also professionalized them such that they could interact appropriate and efficiently with my civil servant team and the local contractors.
- *Working with our on-site industrial contractors:* Dr. Menzies works well with industry. Most of the personnel in this facility and industrial contractors and Dr. Menzies worked tireless with them to understand their research needs. He used that information to nudge his colleagues from WVU into adjusting their research focus towards what the contractors needed. As a result, Dr. Menzies secured hundreds of thousands of extra research dollars for WVU.
- *Working with researchers:* As part of the research chair position, Dr. Menzies worked with researchers from around the country. He worked with that community to find new research opportunities for our program, assisted those researchers in developing proposals, then assisting our civil servants in assessing and monitoring that work. Such a task is only possible when one has a broad understanding of the SE field. Dr. Menzies was excellent in this role and, in a single year, increased the number of proposals to our program from 48 to 111 (a 230% increase!)

In summary, Dr. Menzies works very effectively with others. He is enthusiastic and stimulating to talk to. He's always open to hearing new ideas and often has something significant to offer the dialogue. Dr. Menzies was an ideal fit in our NASA software assurance research environment. If he were to consider returning to WV I would enthusiastically welcome him back to our staff.

 Nelson Keeler, Ph.D.
Nelson.H.Keeler@ivv.nasa.gov