

**Rob Walker**  
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Websites:    

## EDUCATION

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2004 PhD with distinction, Anthropology, University of New Mexico  
2001 MS with distinction, Anthropology, University of New Mexico  
1998 BA magna cum laude, Anthropology, Colorado State University  
1994 High school valedictorian, Bayfield, Colorado

## EMPLOYMENT (5 universities)

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2015 Associate Professor, Anthropology, University of Missouri  
2009 Assistant Professor, Anthropology, University of Missouri  
2008 Postdoctoral researcher, Max Planck Institute for Evolutionary Anthropology  
2007 Research Professor, Anthropology, University of Colorado Denver  
2006 Lecturer, Anthropology, University of New Mexico  
2005 Lecturer, Anthropology, University of California Santa Barbara

## SKILLS

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- Applied machine learning and deep learning in R and Python (*keras/tensorflow*)
- Deep learning models applied to imagery and bioinformatics using convolutional and recurrent neural networks
- Time series and natural language processing using long short-term memory and Bayesian structural time series
- Spatial machine learning methods applied to satellite imagery and remote sensing data using deep neural networks

## TEACHING (4 universities, 16 courses)

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2018 Machine Learning, Neural Networks, Time Series Analysis, Text Mining and Natural Language Processing (online courses taught in R and Python)  
2009 Data Science in R, Comparative Methods, Amazonia, Cultural Evolution, Biological Anthropology, Anthropology of War, Honors Anthro (Mizzou)  
2007 Biological Anthropology, Human Behavior (CU Denver)  
2006 Human Lifecourse, Human Evolutionary Ecology (UNM)

**PUBLICATIONS ( $n = 62$ ,  $h = 27$ ,  $i10 = 43$ , citations = 4100+)**

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- nd Bain J, S Goggins, RS Walker. Non-linear scaling of diversity in cities: Bayesian analysis of migrant language communities across the United States
- nd Hamilton MJ, RS Walker, C Kempes. Diversity begets diversity in human cultures and mammal species
- nd Hamilton MJ, RS Walker, D Blasi, C Bowern. Machine-learning estimates  $6 \pm 2$  million humans on hunter-gatherer planet Earth
- nd Eren MI, B Story, A Perrone, M Bebbler, MJ Hamilton, RS Walker, B Buchanan. North American Clovis point form and function: An experimental assessment of penetration depth
- 2020 Hamilton MJ, RS Walker, B Buchanan, DS Sandeford. Scaling human sociopolitical complexity. *PLoS ONE*
- Walker RS. Cultural phylogenetics in lowland South America, in *Language Dispersal, Diversification, and Contact: A Global Perspective*. Eds M Crevels & P Muysken. Oxford University Press
- 2019 Walker RS, MJ Hamilton. Machine learning with remote sensing data to locate uncontacted indigenous villages in Amazonia. *PeerJ Computer Science* 5:e170
- Hamilton MJ, RS Walker. Nonlinear diversification rates of linguistic phylogenies over the Holocene. *PLoS ONE* 14:e0213126
  - Hamilton MJ, RS Walker, B Buchanan. Spatiotemporal diversification of projectile point types in western North America over 13,000 years. *Journal of Archaeological Science* 24:486-495
- 2018 Hamilton MJ, B Buchanan, RS Walker. Scaling the size, structure, and dynamics of residentially mobile hunter-gatherer camps. *American Antiquity* 83:701-720
- Hamilton MJ, RS Walker. A stochastic density-dependent model of long-term population dynamics in hunter-gatherer populations. *Evolutionary Ecology Research* 19:85-102
- 2017 Beckerman S, M Lizarralde, DM Peluso, C Yvinec, N Harris, D Parker, RS Walker, KR Hill. Partible paternity, the secondary sex ratio and a possible Trivers-Willard effect. *Current Anthropology* 58:540-543
- 2016 Walker RS, DC Kesler, KR Hill. Are isolated indigenous populations headed toward extinction? *PLoS ONE* 11:e0150987
- Puts DA, AK Hill, DH Bailey, RS Walker, D Rendall, JR Wheatley, LLM Welling, K Dawood, R Cárdenas, RP Burriss, NG Jablonski, MD

- Shriver, D Weiss, AR Lameira, CL Apicella, MJ Owren, C Barelli, ME Glenn, G Ramos-Fernandez. Sexual selection on male vocal fundamental frequency in humans and other anthropoids. *Proceedings of the Royal Society of London B* 283:20152830
- De Vynck JC, R Anderson, C Atwater, RM Cowling, EC Fisher, CW Marean, RS Walker, KR Hill. Return rates from intertidal foraging from Blombos Cave to Pinnacle Point: understanding early human economies. *Journal of Human Evolution* 92:101-115
  - Ellsworth RM, DH Bailey, MK Shenk, RS Walker. Comparative study of reproductive skew and pair-bond stability using genealogies from 80 small-scale human societies. *American Journal of Human Biology* 28:335-342
- 2015 Walker RS, KR Hill. Protecting isolated tribes. *Science* 348:1061
- Walker RS, L Sattenspiel, KR Hill. Mortality from contact-related epidemics among indigenous populations in Greater Amazonia. *Scientific Reports* 5:14032
  - Kesler DC, RS Walker. Geographic distribution of isolated indigenous societies in Amazonia and the efficacy of indigenous territories. *PLoS ONE* 10:e0125113
  - Walker RS, C Yvinec, RM Ellsworth, DH Bailey. Co-father relationships among the Suruí (Paite) of Brazil. *PeerJ* 3:e899
  - Ellsworth RM, RS Walker. Sociobiology of lethal violence in small-scale societies, in *Routledge Handbook of Biosocial Criminology*. Eds M DeLisi & MG Vaughn. Routledge, p. 57-74
  - Walker RS. Human residence patterns, in *Emerging Trends in the Social and Behavioral Sciences*. Eds R Scott & S Kosslyn. Wiley, p. 1-8
  - Walker RS. Evolution of culture, in *Basics in Human Evolution*. Ed MP Muehlenbein. Academic Press, p. 525-531
- 2014 Walker RS, MJ Hamilton, AA Groth. Remote sensing and conservation of isolated indigenous villages in Amazonia. *Royal Society Open Science* 1:140246
- Macfarlan SJ, RS Walker, MV Flinn, NA Chagnon. Lethal coalitionary aggression and long-term alliances among Yanomamö men. *Proceedings of the National Academy of Sciences USA* 111:16662-16669
  - Walker RS. Amazonian horticulturalists live in larger, more related groups than hunter-gatherers. *Evolution & Human Behavior* 35:384-388
  - Ellsworth RM, DH Bailey, KR Hill, AM Hurtado, RS Walker. Relatedness, co-residence, and shared fatherhood among Ache foragers of Paraguay. *Current Anthropology* 55:647-653
  - Walker RS, MJ Hamilton. Amazonian societies on the brink of extinction. *American Journal of Human Biology* 26:570-572

- Walker RS, DH Bailey. Marrying kin in small-scale societies. *American Journal of Human Biology* 26:384-388
  - Walker RS, KR Hill. Causes, consequences, and kin bias of human group fissions. *Human Nature* 25:465-475
  - Bailey DH, KR Hill, Walker RS. Fitness consequences of spousal relatedness in 46 small-scale societies. *Biology Letters* 10:20140160
  - Hamilton MJ, RS Walker, DC Kesler. Crash and rebound of indigenous populations in lowland South America. *Scientific Reports* 4:4541
  - Ellsworth RM, RS Walker. Integrating approaches to human uniqueness. *Current Anthropology* 55:768-769
- 2013 Walker RS, S Beckerman, MV Flinn, M Gurven, CR von Rueden, KL Kramer, RD Greaves, L Córdoba, D Villar, EH Hagen, JM Koster, L Sugiyama, TE Hunter, KR Hill. Living with kin in lowland horticultural societies. *Current Anthropology* 54:96-103
- Walker RS, DH Bailey. Body counts in lowland South American violence. *Evolution & Human Behavior* 34:29-34
  - Bailey DH, RS Walker, GE Blomquist, KR Hill, AM Hurtado, DC Geary. Heritability and fitness correlates of personality in the Ache, a natural-fertility population in Paraguay. *PLoS ONE* 8:e59325
- 2012 Walker RS, S Wichmann, T Mailund, CJ Atkisson. Cultural phylogenetics of the Tupi language family in lowland South America. *PLoS ONE* 7:e35025
- Bailey DH, MJ Hamilton, RS Walker. Latitude, population size, and the language-farming dispersal hypothesis. *Evolutionary Ecology Research* 14:1057-1067
  - Hamilton MJ, O Burger, RS Walker. Human Ecology, in *Metabolic Ecology: A Scaling Approach*. Eds RM Sibly, A Kodric-Brown & JH Brown. Wiley & Sons, p. 248-257
- 2011 Hill K, RS Walker, M Bozicevic, J Eder, T Headland, B Hewlett, AM Hurtado, F Marlowe, P Wiessner, B Wood. Co-residence patterns in hunter-gatherer societies show unique human social structure. *Science* 331:1286-1289
- Wichmann S, EW Holman, T Rama, RS Walker. Correlates of reticulation in linguistic phylogenies. *Language Dynamics & Change* 1:205-240
  - Walker RS, KR Hill, MV Flinn, RM Ellsworth. Evolutionary history of hunter-gatherer marriage practices. *PLoS ONE* 6:e19066
  - Walker RS, LA Ribeiro. Bayesian phylogeography of the Arawak expansion in lowland South America. *Proceedings of the Royal Society of London B* 278:2562-2567

- Walker RS, MJ Hamilton. Social complexity and linguistic diversity in Austronesian and Bantu population expansions. *Proceedings of the Royal Society of London B* 278:1399-1404
  - Hogg RT, RS Walker. Life-history correlates of enamel microstructure in Cebidae (Platyrrhini, Primates). *Anatomical Record* 294:2193-2206
  - Gawlik A, RS Walker, Z Hochberg. Impact of infancy duration on adult size in 22 subsistence-based societies. *Acta Paediatrica* 100:e248-e252
  - Hochberg Z, A Gawlik, RS Walker. Evolutionary fitness as a function of pubertal age in 22 subsistence-based traditional societies. *International Journal of Pediatric Endocrinology* 2011:2
- 2010 Walker RS, MV Flinn, KR Hill. Evolutionary history of partible paternity in lowland South America. *Proceedings of the National Academy of Sciences USA* 107:19195-19200
- Burger O, RS Walker, MJ Hamilton. Lifetime reproductive effort in humans. *Proceedings of the Royal Society of London B* 277:773-777
- 2009 Hamilton MJ, O Burger, JP DeLong, RS Walker, M Moses, JH Brown. Population stability, cooperation and the invasibility of the human species. *Proceedings of the National Academy of Sciences USA* 106:12255-12260
- 2008 Walker RS, M Gurven, O Burger, MJ Hamilton. Trade-off between number and size of offspring in humans and other primates. *Proceedings of the Royal Society of London B* 275:827-833
- Walker RS, MJ Hamilton. Life history consequences of density dependence and the evolution of human body sizes. *Current Anthropology* 49:115-122
- 2007 Hamilton MJ, BT Milne, RS Walker, O Burger, JH Brown. Complex structure of hunter-gatherer social networks. *Proceedings of the Royal Society of London B* 274:2195-2202
- Hamilton MJ, BT Milne, RS Walker, JH Brown. Nonlinear scaling of space use in human hunter-gatherers. *Proceedings of the National Academy of Sciences USA* 104:4765-4769
  - Hill K, AM Hurtado, RS Walker. High adult mortality among Hiwi hunter-gatherers: Implications for human evolution. *Journal of Human Evolution* 52:443-454
- 2006 Walker RS, O Burger, J Wagner, CR von Rueden. Evolution of brain size and juvenile periods in primates. *Journal of Human Evolution* 51:480-489
- Walker RS, M Gurven, K Hill, A Migliano, NA Chagnon, R De Souza, G Djurovic, R Hames, AM Hurtado, H Kaplan, K Kramer, WJ Oliver, C Valeggia, T Yamauchi. Growth rates and life histories in twenty-two small-scale societies. *American Journal of Human Biology* 18:295-311

- Walker RS, K Hill, O Burger, AM Hurtado. Life in the slow lane revisited: Ontogenetic separation between chimpanzees and humans. *American Journal of Physical Anthropology* 129:577-583
  - Gurven M, RS Walker. Energetic demand of multiple dependents and the evolution of slow human growth. *Proceedings of the Royal Society of London B* 273:835-841
- 2005 Burger O, M Hamilton, RS Walker. Prey as patch model: A marginal gains curve for vertebrate prey. *Journal of Archaeological Science* 32:1147-1158
- 2003 Walker RS, KR Hill. Modeling growth and senescence in physical performance among the Ache of Eastern Paraguay. *American Journal of Human Biology* 15:196-208
- 2002 Walker RS, KR Hill, H Kaplan, G MacMillan. Age-dependency in hunting ability among the Ache of Eastern Paraguay. *Journal of Human Evolution* 42:639-657
- 2001 Todd LC, DC Jones, RS Walker, P Burnett, J Eighmy. Late archaic bison hunters in Northern Colorado: 1997-1999 Excavations at the Kaplan-Hoover Bison Bonebed. *Plains Anthropologist* 46:125-147

## **GRANTS & FELLOWSHIPS (n = 17, \$375,000)**

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- 2017 Mizzou retention package, \$100,000
- 2016 Mizzou Research Council Grant, Guajajara Guardians: Indigenous protection of native lands in eastern Amazonia, \$10,000
- 2015 National Geographic Society Research and Exploration Grant (#9764-15), Co-father relationships among Aché hunter-gatherers of Eastern Paraguay with KR Hill, \$20,000
- MU Research Board Grant, Remote sensing uncontacted indigenous villages in Amazonia with DC Kesler, \$25,000
- 2014 MU Research Council Grant, Remote sensing uncontacted indigenous villages in Amazonia, \$9,000
- Richard Wallace Faculty Incentive Grant, Remote sensing uncontacted indigenous villages in Amazonia with DC Kesler, \$4,000
- 2013 National Geographic Society Research and Exploration Grant (#9165-12), Population dynamics of recently contacted and isolated indigenous populations in Brazil with DC Kesler and MJ Hamilton, \$20,000
- 2012 RocketHub SciFund Challenge crowd-source funding, Shrinking horizons: Preserving humans' homes with MJ Hamilton and DC Kesler, \$3,000
- 2011 MU Research Board Grant, Alloparental kin investment & female reproductive strategies in Central Brazil with RM Ellsworth, \$34,000
- Richard Wallace Faculty Incentive Grant, Partible paternity in Brazil, \$2,000

- 2007 LSB Leakey Foundation General Research Grant, Growth & life history of the Hiwi, Venezuela, \$12,000
- 2003 Wenner-Gren Foundation Dissertation Research Grant (#6941), Skill investment and subsistence activities among the Makú of Northwest Amazonas, Brazil, \$15,000
- NSF Doctoral Dissertation Improvement Grant, \$10,000
  - LSB Leakey Foundation General Research Grant, \$12,000
- 2002 UNM research and travel grants, \$5,000
- 2001 NSF Graduate Research Fellowship, 3 years, \$72,000
- 1999 UNM Lewis R Binford Graduate Fellowship, 2 years, \$24,000

### **FIELDWORK (47 months)**

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- 2016 Indigenous protection of forests with Guajajara Guardians, Brazil, 3 months
- 2013 Population dynamics of indigenous populations, Brazil, 2 months
- 2011 Alloparental kin investment & reproductive strategies, Brazil, 6 months
- 2010 Aché personality research, Paraguay, 2 month
- 2009 Cultural & linguistic variation in lowland South America, 6 months
- 2006 Trio & Wayana demography, Brazil & Suriname, 3 months
- 2005 Visual evoked potentials & electroencephalography with Aché, 2 months
- 2002 Makú growth & life history, Brazil, 6 months
- 2000 Aché age-specific hunting ability, Paraguay, 4 months
- 1999 Archaeology, Hudson-Meng Bison Bonebed, Nebraska, 3 months
- 1998 Archaeology, Kaplan-Hoover Bison Bonebed, Colorado, 12 months

### **PRESENTATIONS (*n* = 28)**

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- 2018 Last of the world's uncontacted tribes. Miami
- 2017 Multiple fathers in lowland South America. Miami
- 2016 Last of the world's uncontacted tribes. Baylor
- 2015 Body counts in lowland South American violence. NIMBioS
- Last of the world's uncontacted tribes. Mizzou Saturday Morning Science
- 2014 Remote sensing uncontacted indigenous villages in Amazonia. UNLV
- Uniqueness of human social structure. Leipzig
  - Remote sensing uncontacted indigenous villages in Amazonia. ASU
  - Multiple fathers in lowland South America. University of Kent
  - Extensive versus intensive human kinship systems. Penn State
- 2013 Multiple fathers in lowland South America. MU Life Sciences and Society
- 2012 Cultural phylogenetics in lowland South America. Amsterdam
- Body counts in Amazonian violence. UNM

- Living with kin in traditional human societies. Penn State
- 2011 Mode & tempo of human cultural evolution. Yale
- 2010 Evolutionary history of partible paternity. Yale
  - Cultural variation in the Amazon. Missouri Southern State
- 2009 Lifetime reproductive effort in humans. Washington University
- 2008 Human life history from a comparative perspective. UNM
  - Number & size tradeoff of offspring in humans & other animals. UNM
  - Life-history theory of small & large body size in hunter-gatherers. ASU
- 2007 Age uncertainty & comparative human life history. Leipzig
  - Human life history from a comparative perspective. UCLA
  - Trade-off between number & size of offspring in humans & other primates. William & Mary
  - Density dependence & human life history evolution. Philadelphia
- 2006 Life history consequences of density dependence in the evolution of hunter-gatherer body sizes. Philadelphia
  - Activity patterns & health of Aché hunter-gatherers. Denver
  - Are there two human ontogenies? Anchorage

## **AWARD**

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2015 Mizzou Provost Outstanding Junior Faculty Research Award

## **REFERENCES**

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Dr. Mark Flinn, Professor of Anthropology  
 Department of Anthropology, Baylor University  
 One Bear Place, Waco, TX 76798  
 email: Mark\_Flinn@baylor.edu, phone: (254) 710-4050

Dr. Kim Hill, Professor of Anthropology  
 School of Human Evolution and Social Change, and Institute of Human Origins  
 Arizona State University, Tempe AZ 85287-2402  
 email: Kim.Hill@asu.edu, phone: (480) 727-0679

Dr. Marcus Hamilton, Associate Professor of Data Analytics  
 Department of Anthropology, University of Texas at San Antonio  
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Dr. Michael Gurven, Professor of Anthropology



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