

RYAN SINNET, PHD

Hands-on Technology Leader

✉ rsinnet@gmail.com 🌐 ryansinnet.com 📍 San Diego, CA

📄 in/ryansinnet 📄 github.com/rsinnet



STRENGTHS

- 30+ years of prolific programming and tinkering
- Inspirational & compassionate leader and teammate
- Deep thinker with broad interests

EXPERIENCE

Co-Founder & CTO (etc)

Miso Robotics

📅 Oct 2016 – Feb 2024 📍 Pasadena, CA

- Invented Flippy, one of the world's first cooking robots
- Grew software team from 1 to about 20
- Wrote tons of software and cloud infrastructure
- Deployed machine learning and computer vision models
- Built engineering processes and tracking
- Documented software architecture

Control Software Engineer

eSolar

📅 Apr 2015 – Oct 2016 📍 Burbank, CA

- Designed and implemented control algorithms for solar power plant in South Australia
- Automated hardware/software integration testing

Graduate Student Researcher

Texas A&M University

📅 Aug 2008 – Jan 2015 📍 College Station, TX

- National Science Foundation Graduate Research Fellow
- Member, NASA Johnson Space Center team, DARPA Robotics Challenge: taught Valkyrie (humanoid) to walk
- Wrote world's first paper: robot walking without flat feet

SKILLS

Python, TypeScript, Go, Bash, C++20, C, SQL, NoSQL, React, Docker, Kubernetes, Terraform, AWS, GCP, APIs, LLMs/AI Agents, Jupyter, PyTorch, Robotics, Controls, Computer Vision, Machine Learning, Sensor Fusion, ROS2, IoT, Linux, Windows, Networking, Data Analysis, Build/Test Automation, Documentation, JIRA, Data Lakes, Management

LIFE PHILOSOPHY

"Just because something hasn't been done before doesn't mean it's impossible."

MOST PROUD OF

- Granted 11 patents by USPTO
- Wrote 15 scientific articles
- Published work cited over 1,500 times
- '21 IROS Best Paper Finalist Award
- '20 Largest crowdfund in history (\$27 mm)
- '18 Miso Robotics front page of USA Today
- '15 Gonfaloniere Texas A&M Engineering
- '10-13 NSF Graduate Research Fellow
- '07 Caltech Basketball Coaches' Award
- '05 Caltech Basketball Most Improved Player
- '05 Research Fellowship at NASA JPL
- '03 Salutatorian Carmel High School
- '02 Co-founded Carmel High Lacrosse Team
- First place in county math competitions

LANGUAGES

English ●●●●●
Spanish ●●●●●
Hebrew ●●●●●
Italian ●●●●●

EDUCATION

PhD & MS in Robotics

TEXAS A&M 📍 College Station, TX

📅 Jan 2015, May 2010

BS in Electrical Eng

Caltech 📍 Pasadena, CA

📅 June 2007

VIDEOS

- Piloting NASA Valkyrie robot (bottom left): <https://youtu.be/IE-YBaYjbqY?t=132>
- The original Flippy on Good Morning America: https://youtu.be/D80_UStVayQ

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PATENTS

1. R. W. Sinnet and R. Anderson, "Automated kitchen system for assisting human worker prepare food," US-12135533-B2, Nov. 2024.
2. D. Zito, R. W. Sinnet, and R. Anderson, "Transportable robotic-automated kitchen workcell," US-12133615-B2, Nov. 2024.
3. R. W. Sinnet et al, "Automated bin system for accepting food items in robotic kitchen workspace," US-12082742-B2, Sep. 2024.
4. R. W. Sinnet et al, "Robotic kitchen assistant for frying including agitator assembly for shaking utensil," US-11833663-B2, Dec. 2023.
5. R. W. Sinnet et al, "Automated bin system for accepting food items in robotic kitchen workspace," US-11744403-B2, Sep. 2023.
6. R. W. Sinnet et al, "Multi-sensor array including an IR camera as part of an automated kitchen assistant system for recognizing and preparing food and related methods," US-11618155-B2, Apr. 2023.
7. R. W. Sinnet et al, "Modular robotic food preparation system and related methods," US-11577401-B2, Feb. 2023.
8. D. Zito, R. W. Sinnet, R. Anderson, G. Stafford, and S. Olson, "Robotic sled-enhanced food preparation system and related methods," US-11351673-B2, Jun. 2022.
9. R. W. Sinnet et al, "Robotic kitchen assistant for frying including agitator assembly for shaking utensil," US-11192258-B2, Dec. 2021.
10. R. Sinnet et al, "Robotic kitchen assistant including universal utensil gripping assembly," US-11167421-B2, Nov. 2021.
11. R. W. Sinnet et al, "Multi-sensor array including an IR camera as part of an automated kitchen assistant system for recognizing and preparing food and related methods," US-10919144-B2, Feb. 2021.

THESES

1. R. W. Sinnet, "Energy Shaping of Mechanical Systems via Control Lyapunov Functions with Applications to Bipedal Locomotion," Ph.D. dissertation, Texas A&M University, May 2015.
2. R. W. Sinnet, "Hybrid Geometric Feedback Control of Three-Dimensional Bipedal Robotic Walkers with Knees and Feet," Master's thesis, Texas A&M University, May 2011.

BOOK CHAPTERS

1. A. D. Ames, R. W. Sinnet, and E. D. B. Wendel, "Three-Dimensional Knead Bipedal Walking: A Hybrid Geometric approach," in 12th ACM International Conference on Hybrid Systems: Computation and Control (HSCC 2011), pp. 16–30, San Francisco, CA, Apr. 2009.

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JOURNAL ARTICLES

1. S. Kolathaya, W. Guffey, R. W. Sinnet, A. D. Ames, "Direct Collocation for Dynamic Behaviors with Nonprehensile Contacts: Application to Flipping Burgers," in *IEEE Robotics and Automation Letters*, pp. 3677–84, Jul. 2018.
2. J. W. Grizzle, C. Chevallereau, R. W. Sinnet, and A. D. Ames, "Models, feedback control, and open problems of 3D bipedal robotic walking," survey article in *Automatica*, Vol. 50, No. 8, pp. 1955–88, 2014.
3. R. W. Sinnet, S. Jiang, and A. D. Ames, "A human-inspired framework for bipedal robotic walking design," in *International Journal of Biomechanics and Biomedical Robotics*, Vol. 3, No. 1, pp. 20–41, 2014.
4. R. W. Sinnet and A. D. Ames, "Bio-Inspired Feedback Control of Three-Dimensional Humanlike Bipedal Robots," in *Journal of Robotics and Mechatronics*, Special Issue on Focused areas and future trends in bio-inspired robots, Vol. 24, No. 4, pp. 595–601, 2012.

CONFERENCE PAPERS

1. A. Singletary, W. Guffey, T. G. Molnar, R. Sinnet, and A. D. Ames, "Safety-Critical Manipulation for Collision-Free Food Preparation," in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2022)* and *IEEE Robotics and Automation Letters*, pp. 10954–61 Kyoto, Japan, Oct. 2022.
2. R. W. Sinnet and A. D. Ames, "Energy Shaping of Hybrid Systems via Control Lyapunov Functions," in *2015 American Control Conference (ACC 2015)*, Chicago, IL, Jul. 2015.
3. S. Kolathaya, B. J. Morris, R. W. Sinnet, and A. D. Ames, "System Identification and Control through Efficient SVA-Based Regressor Computation," *CoRR* 2016.
4. R. W. Sinnet and A. D. Ames, "Extending Two-Dimensional HumanInspired Bipedal Robotic Walking to Three Dimensions through Geometric Reduction," in *2012 American Control Conference (ACC 2012)*, pp. 4831–6, Montreal, Canada, Jun. 2012.
5. R. W. Sinnet, M. J. Powell, S. Jiang, and A. D. Ames, "Compass Gait Revisited: A Human Data Perspective with Extensions to Three Dimensions," in *50th IEEE Conference on Decision and Control (CDC 2011)*, pp. 682–9, Orlando, FL, Dec. 2011.
6. R. W. Sinnet, H. Zhao, and A. D. Ames, "Simulating Prosthetic Devices with Human-Inspired Hybrid Control," in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2011)*, pp. 1723–30, San Francisco, CA, Sep. 2011.
7. R. W. Sinnet, M. J. Powell, R. P. Shah, and A. D. Ames, "A Human-Inspired Hybrid Control Approach to Bipedal Robotic Walking," in *18th IFAC World Congress (IFAC 2011)*, pp. 6904–11, Milan, Italy, Aug. 2011.
8. J. W. Grizzle, C. Chevallereau, A. D. Ames, and R. W. Sinnet, "3D Bipedal Robotic Walking: Models, Feedback Control, and Open Problems," plenary paper in *8th IFAC Symposium on Nonlinear Control Systems (NOLCOS 2010)*, pp. 505–32, Bologna, Italy, Sep. 2010.
9. R. W. Sinnet and A. D. Ames, "3D Bipedal Walking with Knees and Feet: A Hybrid Geometric Approach," in *Joint 48th IEEE Conference on Decision and Control and 28th Chinese Control Conference (CDC/CCC 2009)*, pp. 3208–13, Shanghai, China, Dec. 2009.
10. R. W. Sinnet and A. D. Ames, "2D Bipedal Walking with Knees and Feet: A Hybrid Control Approach," in *Joint 48th IEEE Conference on Decision and Control and 28th Chinese Control Conference (CDC/CCC 2009)*, pp. 3200–7, Shanghai, China, Dec. 2009.

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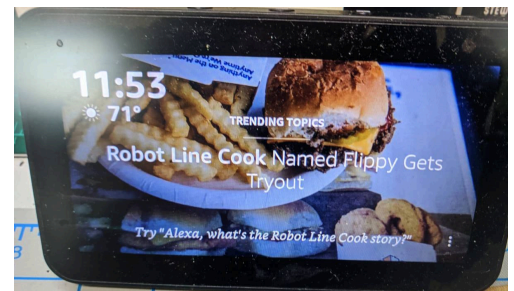


GITHUB METRICS

19,226 contributions since 2013 (see personal GitHub page)

MEDIA HIGHLIGHTS

1. M. Demmers, "Kitchen Aid," in *Techer (Caltech Alumni Magazine)*, 2024.
2. "Restaurant using AI opens in California," in *Sky News Australia*, Jan. 12, 2024.
3. S. Hirasuna, "Fully AI-powered restaurant opening in Pasadena," in *FOX 11 Los Angeles*, Jan. 10, 2024
4. E. Demaitre, "Miso Robotics partners with PathSpot to scan restaurant workers for health, safety," in *Robot Report*, May 19, 2020
5. J. Shieber, "The robotic fry cook Flippy is getting a new look," in *TechCrunch*, Jan. 28, 2020.
6. K. Wiggers, "Miso Robotics unveils its next-gen robot kitchen assistant," in *VentureBeat*, Jan. 28, 2020.
7. N. Luna, "Flippy, the robotic fry cook by Miso Robotics, gets makeover aimed at widespread restaurant industry adoption," in *Nation's Restaurant News*, Jan. 27, 2020.
8. S. Amore, "Robo Chef: Miso Robotics Gets Out of the Lab and Into the Kitchen," in *Los Angeles Business Journal*, Nov. 22, 2018.
9. N. Owano, "Burger robots to appear at 50 locations," in *Tech Xplore*, Sep. 16, 2017.



My robot Flippy appeared on Amazon Echo Show



Miso Robotics made the front page of USA Today