Approved by the Regents
May 17, 2018

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering
Department of Biomedical Engineering

Cynthia A. Chestek, assistant professor of biomedical engineering, Department of Biomedical Engineering, College of Engineering and Medical School, and assistant professor of electrical engineering and computer science, Department of Electrical Engineering and Computer Science, College of Engineering, is recommended for promotion to associate professor of biomedical engineering, with tenure, Department of Biomedical Engineering, College of Engineering and Medical School, and associate professor of electrical engineering and computer science, without tenure, Department of Electrical Engineering and Computer Science, College of Engineering.

Academic Degrees:

Ph.D.	2010	Stanford University, Electrical Engineering, Stanford, CA
M.S.	2005	Case Western Reserve University, Electrical Engineering, Cleveland, OH
B.S.E.	2003	Case Western Reserve University, Electrical Engineering, Cleveland, OH

Professional Record:

2013 – present	Assistant Professor, Department Electrical Engineering and Computer Science, University of Michigan
2012 – present	Assistant Professor, Department of Biomedical Engineering, University of Michigan
2012 – 2010	Research Associate, Stanford Institute for Neuroinnovation and Translational Neuroscience, Stanford University, Stanford, CA

Summary of Evaluation:

Teaching: Professor Chestek has demonstrated to be an excellent teacher and mentor. She has been engaged in teaching two classes: BME 241, a sophomore/junior-level lab class for BME undergraduates, and BME 517, a graduate-level class in neural engineering (solely developed by Professor Chestek). Her teaching scores are typically high, with Q1/Q2 scores averaging over 4.0. She is an outstanding mentor of both undergraduate and graduate students. She has graduated three Ph.D. students and currently has seven Ph.D. students in her group. Professor Chestek is also active in mentoring undergraduates in her lab.

Research: Professor Chestek has an extensive research program with strong funding and multiple, impactful contributions. She co-authored over 30 papers, over 10 as senior author since her appointment at Michigan. External reviewers are uniformly laudatory of her contributions and consider her independent, innovative, collaborative, and an emerging leader in the field of neural engineering. She has demonstrated a considerable capacity for productive work. For example, in her Coulter project, she is implanting electrodes to record signals that originate from nerve fibers, employing those signals to enable the user to operate a prosthetic. In

addition to expanding the research base in her own lab, she has built successful collaborations between engineering and medicine.

Recent and Significant Publications:

P. P. Vu, Z. T. Irwin, A. J. Bullard, S. L. Woo, I. C. Sando, M. G. Urbanchek, P. S. Cederna, C. A. Chestek, "Closed-loop continuous hand control via chronic recording of regenerative peripheral nerve interfaces and intact muscle," *IEEE TNSRE.* 2017, Accepted.

Z. T. Irwin, K. E. Schroeder, P. Vu, A. J. Bullard, D. Tat, C. Nu, A. Vaskov, S. Nason, D. E. Thompson, J. N. Bentley, P. Patil, C. A. Chestek, "Closed-loop control of finger movement via intracortical brain-machine interface." *J Neural Eng.* 2017, Accepted.

K. E. Schroeder, Z. T. Irwin, A. J. Bullard, D. E. Thompson, N. J. Bentley, W. C. Stacey, P. G. Patil, C. A. Chestek, "Robust tactile sensory responses in finger area of primate motor cortex relevant to prosthetic control," *J Neural Eng.* 2017; 14(4): 046016, Accepted.

P. R. Patel, H. Zhang, M. T. Robbins, J. B. Nofar, S. P. Marshall, M. J. Kobylarek, T. D. Kozai, N. A. Kotov and C. A. Chestek, "Chronic in vivo stability assessment of carbon fiber microelectrode arrays," *J Neural Eng. 2016; 13(6).*

S. V. Gliske, Z. T. Irwin, C. Chestek, and W. C. Stacey, "Effect of sampling rate and filter settings on high frequency oscillation detections," *Clinical Neurophysiology.* 2016; 127(9): 3042-3050.

Service: Since her initial appointment in 2012, Professor Chestek has engaged in numerous service roles to the Department of Biomedical Engineering, the University of Michigan, and national funding and professional organizations. These activities not only underscore Professor Chestek's contributions to the university and her field but also underscore a rising reputational standing in the biomedical engineering community at the national level. Highlights of her service include membership on the Medical Schools BRAIN initiative working group, permanent membership on the NIH study panel BNVT, and membership on the steering committee of the Neural Interfaces Conference.

External Reviewers:

Reviewer A: "Her overall rate of publication is quite strong for someone at her career stage, and her primary research articles provide evidence of strong, independent, original research. It is important to recognize that at least some of Dr. Chestek's research is focused on exceedingly complex experiments in non-human primates, and the pace of progress and productivity is typically less than colleagues focused on modeling or preclinical research. Thus, her research productivity is even all the more impressive."

Reviewer B: "The body of work that Cynthia has accumulated as a whole is appropriate for promotion and is exceptionally strong. I commend her for receiving the prestigious McKnight Technological Innovations in Neuroscience Award which is early recognition for her achievements. The number and quality of technical activities in which she engages is outstanding and her future research directions are exciting."

Reviewer C: "She is currently a member of one of the main NIH neural engineering study sections – a bit unusual for an assistant professor. Her prominence is further underscored by the

fact that she is giving increasingly many national and international talks. Since 2014 she has given just under four invited talks per year. Neural Engineering is still dominated by males, making her contributions doubly important in terms of their direct impact, as well as her ability to serve as an important role model."

Reviewer D: "I strongly believe that Cyndi meets or exceeds all qualifications for promotion to Associate Professor with Tenure. She is an exemplary academic citizen and an emerging leader in our field. She is directing a highly-productive research lab (11 PhD students to date), created a new Neural Engineering course at UM, and engaged in both community outreach and efforts to increase the diversity within your university. She should be applauded for launching a highly successful, diversified, and independent research career. I look forward to closely following her success in the future."

Reviewer E: "Prof. Chestek has already established herself as an innovator and is emerging as a world leader in neural engineering. Her future plans are exciting, and her intuition for important problems is spot-on. She will continue to be a superb collaborator, fund-raiser, and leader in our field. She is a fundamentally decent and likable person with excellent communications and leadership skills."

Summary of Recommendation: Professor Chestek is a strong classroom teacher and outstanding mentor. She has made a significant impact in her field, is an emerging leader, and is a respected member of her research community. It is with support of the College of Engineering Executive Committee that we recommend Cynthia A. Chestek for promotion to associate professor of biomedical engineering, with tenure, Department of Biomedical Engineering, College of Engineering and Medical School, and associate professor of electrical engineering and computer science, without tenure, Department of Electrical Engineering and Computer Science.

Alec D. Gallimore, Ph.D.
Robert J. Vlasic Dean of Engineering
College of Engineering

Marschall S. Runge, M.D., Ph.D.
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Dean, Medical School

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