

# Curt Breneman

**Dean of the School of Science; Professor; Director, Rensselaer Exploratory Center for Cheminformatics Research (RECCR) at Rensselaer Polytechnic Institute**

Troy, NY, US

Specializes in the development of new molecular property descriptors and machine learning methods for physical and biochemical problems

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## Biography

Curt Breneman was born in Santa Monica, California in 1956, and went on to earn a B.S. in Chemistry at UCLA in 1980 followed by a Ph.D. in Chemistry at UC Santa Barbara (with an emphasis on Physical Organic and Computational Chemistry) in 1987. Following two years of post-doctoral research at Yale University, Dr. Breneman joined the faculty of the Department of Chemistry at Rensselaer Polytechnic Institute (RPI) and began a program in molecular recognition and computational chemistry based on his concept of "Transferable Atom Equivalents", or TAEs, as building blocks for describing the electronic and reactive character of molecules. Dr. Breneman currently holds the rank of Full Professor in the RPI Department of Chemistry and Chemical Biology, and is the Director of the NIH RECCR Center. He later served as Head of the Department of Chemistry & Chemical Biology and now as Dean of the School of Science. The Breneman research group primarily specializes in the development of new molecular property descriptors and machine learning methods that can be applied to a diverse set of physical and biochemical problems. Of paramount interest are methods that can increase the information content of molecular descriptors, and machine learning techniques that can exploit this data for the creation of fully validated, predictive property models. Current application areas include pharmaceutical ADME prediction, virtual high-throughput screening of drug candidates, protein chromatography modeling (HIC and ion-exchange), as well as polymer property prediction.

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## Areas of Expertise

Science, Machine Learning Methods, Chemical Biology, Physical Organic and Computational Chemistry, Chemistry, Transferable Atom Equivalents, Molecular Property Descriptors, Protein Chromatography Modeling

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## Affiliations

American Chemical Society : Fellow

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## Education

**UC Santa Barbara**  
Ph.D. Chemistry

**UCLA**  
B.S. Chemistry

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