X-Sieve: CMU Sieve 2.2
To: Jeremy Bennett <jebennet@indiana.edu>
From: Yves Brun <ybrun@indiana.edu>
Subject: Fwd: Recommendation - Jean Peccoud
Date: Mon, 14 Nov 2005 16:23:22 -0500
X-Mailer: Apple Mail (2.623)

Begin forwarded message:

> From: Rachel Nasca <nasca@fas.harvard.edu>
> Date: November 14, 2005 1:47:17 PM EST
> To: ybrun@indiana.edu
> Cc: lewontin@oeb.harvard.edu
> Subject: Recommendation - Jean Peccoud
>
> Dear Colleague:
>
> I understand that Jean Peccoud is applying for a position at Indiana.
>
> I have reason to know Peccoud's work first hand because of his active collaboration with a former student of mine, Peter Goss. I have also had a number of extremely interesting scientific discussions with Peccoud and have read a number of his papers.
>
> What has impressed me about Peccoud is his very great originality in attacking one of the most important problems in molecular biology and cellular biology which has received some attention but has not been the subject of the intensive research that it deserves. That is, the problem of the actual operation of cellular networks based on small numbers of molecules which must be in the correct vibrational state and the correct intracellular localization for the networks to proceed.
>
> Most molecules involved in cellular processes are present in a very few copies and that means that an understanding of how the networks work must take account of important stochastic elements in the chain of biochemical and molecular reactions. To understand the effect of this important stochasticity on cell function, one needs detailed computer simulations of a probabilistic process with many connections and pathways.
>
> Peccoud has made what I regard as a great breakthrough in the treatment of this problem by his application of stochastic Petri nets and his creation of computer systems that use the Petri net formulation. Using this approach, various curious features of biochemical networks become much easier to understand. For example, biochemical networks often show multiple redundancies of feedback mechanisms. Any one of these redundant pathways can be severed without destroying the feedback system, so it is unclear why organisms have them. Peccoud's approach through stochastic Petri nets has made it possible to understand that the variability of output from such pathways depends on how many redundancies there are. In the absence of such multiply redundant pathways, the variability of the output goes up dramatically. This, in turn, can have severe effects on organisms that depend on a certain minimum or maximum level of production of output in order to survive.
>
> As I am certain you know better than I, biology at the cellular and molecular level has

now become a study of molecular structures and the structure of pathways. Peccoud's recognition of the extreme importance of stochastic elements is a very important development in the future of these studies.

I have not had any experience of Peccoud's teaching, but I find him extremely easy to communicate with, and he makes very clear presentations. I regard it as a great loss to academic research that Peccoud had spent as much time as he has outside of the academic sphere.

I strongly recommend him to you.

Yours sincerely,

(signed)

R.C. Lewontin

Alexander Agassiz

Research Professor
/rn

--Yves

http://www.bio.indiana.edu/facultyresearch/faculty/Brun.html

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