A is for Algorithms —what else would it be?
Of A-groups we're strongest, most arguably.
We started out small but with high quality,
With Hopcroft the focus, the center, the key.
It's bigger than him now, as you can see,
Ever since we became multidisciplin'ry.

A

The range of our contributions to algorithms is impressive and extensive.
Hopcroft: an ACM Turing Prize for his 1971-72 work with Bob Tarjan on planarity algorithms.

Dexter Kozen: algorithms in computer algebra and symbolic computation.

Eva Tardos: a Fulkerson Prize for her work on network flow algorithms, with newer work on networks like the Internet and social networks, and the new 2006 George B. Dantzig Prize.

David Shmoys: influential in giving approximability the role it enjoys.

ORIE colleague David Williamson: a Fulkerson Prize for his work on semidefinite programming in approximation algorithms.

Jon Kleinberg: a MacArthur Genius Award for his work on hubs-and-authorities, which changed how search engines rank pages.

New faculty member Bobby Kleinberg: already recognized for his work on stochastic algorithms and learning-based models for networks.

There are others. Ramin Zabih and Dan Huttenlocher: major impacts in algorithms in computer vision. Bart Selman and Carla Gomes: AI algorithms. Johannes Gehrke: data mining algorithms. David Gries: the methodological side of algorithm design brings another perspective to the table.

On top of that, the group influenced the teaching of algorithmic design, beginning with the classic text on *The Design and Analysis of Computer Algorithms* by Aho, Hopcroft, and Ullman (1974), and moving through Kozen's text on *The Design and Analysis of Algorithms* (1991) to the new Kleinberg-Tardos text *Algorithm Design* (2005).

B is for Bio —computational kind.
We're into B big, with B we're aligned.
But it's not like those DNA seqs are aligned.
Instead, B and CS are now intertwined.

In the 1990s, recognizing the influence CS could have in comp bio, we began looking for faculty. Dexter Kozen, a complexity person, and others collaborated with the wonderful people in bio throughout Cornell, and in 1998 we hired Ron Elber, who does bioinformatics and protein dynamics. Bioinformaticist Uri Keich came on board in 2003.

The Comp Bio program, now within CIS (the Faculty for Computing & Information Science; see Q), is part of Cornell's huge Life Sciences Initiative; over 100 faculty are involved. The number of CS faculty doing comp bio is growing —seems like everyone except me. For example, Elber and jack-of-all-trades Jon Kleinberg did some amazing work on protein evolution, and Elber is working with machine-learning-AI prof Thorsten Joachims on alignments.

Elber collaborates with many people at Cornell —when Steve Tanksley of Plant Breeding couldn't figure out where his tomato gene belonged, Elber's software told him in a few minutes that the gene was similar to a human gene that controls cell division and growth.

Did you hear about Bridging the Rift? That's a research facility being built by Israel and Jordan on their border, in collaboration with Cornell and Stanford. Elber is director of its Library of Life, which will attempt to record information on all living systems in that area. Because of the massive data to be recorded, our folks in data mining are involved.

Want to do comp-bio/data-mining and see the world? Join us.

B