acm

Association for Computing Machinery

Annual Report

FISCAL YEAR

2016

A Supplement to Communications of the ACM

ACM, the Association for Computing Machinery,
is an international scientific and educational organization dedicated to
advancing the arts, sciences, and applications of information technology.

Letter from the President

For the last two years I've had the honor of a front-row seat to all the things that make ACM the premier society in computing. As ACM's president, I traveled the world and watched the global initiatives we've planted over the years flourish beyond expectation. I've witnessed the seeds of our tireless efforts to make computer science available to students worldwide take root in a very tangible sense. And I continue to marvel at the dedication of our volunteers and staff around the world as we work together with a shared sense of purpose to drive the evolution and growth of ACM into a fully global society.

Education has and will always be a compelling force in all ACM enterprises. The Association plays a major role in raising the visibility of computer science education, at both the university and grade school levels. We applauded U.S. President Barack Obama's historic announcement of the Computer Science for All initiative last December, earmarking over $4 billion toward bringing CS education into classrooms nationwide. The Association is committed to supporting the progress and quality of computing education *worldwide* through our close relationship with and support of the Computer Science Teachers Association (CSTA), our leading development of computing curricula, our global conferences, and our dozens of publications on computer science education.

ACM also continues to explore new ways to involve our growing and greatly diversified audience. We worked to engage the entrepreneurial community and technology trailblazers through practitioner-oriented activities and services. This year's Applicative conference, which brought together researchers and practitioners, was another great success. *ACM Queue*, our magazine by and for practitioners, debuted an app in September 2015 offering readers an interactive, socially networked, electronic way to enjoy its content. Earlier this year ACM was invited to host a monthly blog in the *Huffington Post* to inform readers of significant developments in technology with public implications. This opportunity positions ACM as the thought leader in public discussions about the role of technology in society.

With the New Year, we embrace ACM @ 70.

What better way to begin such an occasion than with the recent landmark ACM election resulting in an all-female leadership team. Once again, ACM spearheads the way in demonstrating the accomplishments of and opportunities for women in computing.

Also this year, ACM begins a yearlong celebration of the 50th Anniversary of the ACM A.M. Turing Award, long recognized as the Nobel Prize for computing. Over the next several months ACM will honor the visionaries who have received it. Stay turned for more information about upcoming events.

As proud as I am of all ACM has accomplished, I'm even more excited about its future. In closing, I must recognize the extraordinary efforts of our devoted volunteers, members, staff, and industry partners. We are only as strong as our support system. Thank you all for your guidance, advice, and insights.

It has been my honor to serve as your president.

Alexander L. Wolf
ACM President
July 2014–June 2016

Publications

18 MILLION
Number of full-text downloads in FY16

26,000 FROM 161 COUNTRIES
Number of individual DL subscribers

6 MILLION
Number of users worldwide

The ACM Digital Library (DL) is the cornerstone of ACM publications, serving as the primary distribution hub for all the Association's publications as well as host to scientific periodicals and a set of conference proceedings from external organizations.

In FY16, over 26,900 full-text articles were added to the Digital Library, bringing total DL holdings to 421,000 articles. ACM's *Guide to Computing Literature* is also integrated within the DL. More than 146,000 works were added to the bibliographic database in FY16, bringing the total *Guide* coverage to more than 2.44 million works.

During the year, ACM added 592 volumes of conference and related workshop proceedings to its portfolio. The ACM *International Conference Proceedings Series* (ICPS) added 129 new volumes.
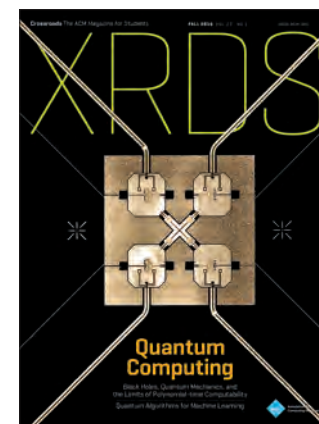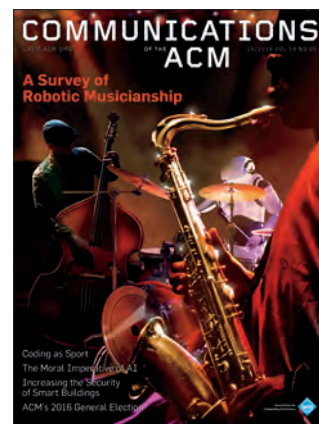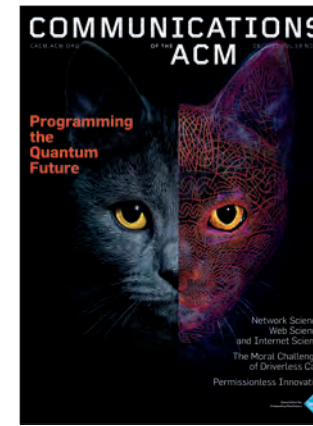
ACM's Publications Portfolio

45
Journals

8
Magazines

30
Newsletters

Education

ACM leads the computer science education community through the work of the ACM Education Board, the ACM Education Council, ACM SIGCSE, Computer Science Teachers Association (CSTA), and ACM Education Policy Committee.

In January 2016, ACM joined the CSTA, Code.org, Cyber Innovation Center, and National Math and Science Initiative on the steering committee charged with the building the framework for K–12 CS education. This committee is joined by more than 100 members of the computing community, leading technology companies, several states and large school districts to develop the conceptual guidelines for a K–12 pathway in computer science.

The ACM Education Board, charged with developing comprehensive, undergraduate curricular guidance in cybersecurity education to support future program development and associated educational efforts, chartered a Joint Task Force on Cybersecurity Education. The JFT is a collaboration among ACM, IEEE-CS, AIS, SIGSAC, and IFIP and in the last year the groups have been busy engaging industry, academia, and government communities in its ongoing work.

ACM-W supports a number of educational activities supporting girls and women around the world, including Techkobwa summer camp for girls in Rwanda and ACM-W's Uganda Chapter. More Ugandan women joined the local chapter and more villages opened their doors to explore computer lessons and activities within the chapter. Thanks in part goes to Stawa University's willingness to avail facilities and equipment for this computer literacy mission in establishing ACM-W Technology Center.

CSTA participated in the inaugural National K–12 Cybersecurity Education Conference. The meeting was devoted specifically to providing research-based resources and strategies for promoting proper behavior in the areas of cyberethics, safety and security, and promoting students' awareness of the plethora of career options in the cybersecurity field.

SIGHPC and Intel initiated a new fellowship program this year in computational and data science aimed at increasing the diversity of students pursuing graduate degrees in these fields. The program awarded its first $15,000 stipend in August.

Yasmin B Kafai

Courtesy of StateImpact Ohio

ACM-W Uganda chapter provided computer lessons to women and girls.

Students

The 40th Annual ACM International Collegiate Programming Contest (ACM-ICPC) was hosted by Prince of Songkla University in Phuket, Thailand, where 128 teams competed in the World Finals. Earlier rounds of the competition included more than 40,000 contestants representing over 2,700 universities from 102 countries. IBM provides financial and systems support for ICPC. The top four teams won gold medals as well as employment or internship offers from IBM.

The ACM Student Research Competition (SRC), sponsored by Microsoft Research, continues to offer a unique forum for undergraduate and graduate students to present their original research at well-known ACM-sponsored and co-sponsored conferences before a panel of judges and attendees. This year's SRC saw graduate and undergraduate winners compete against more than 308 participants in contests held at 23 ACM conferences.

Last June ACM partnered with SocialCoder, an organization that connects volunteer programmers/software developers with registered charities. Through SocialCoder, ACM members offer their technical skills for social good, volunteering to support software development projects for those who could not otherwise afford it. While the joint effort is young, early results indicate ACM student members have taken this partnership to heart. At press time, more than half of the registered volunteers are ACM student members from around the world, representing such countries as Australia, Brazil, Cameroon, China, India, Mexico, and Nigeria.

Turing laureate Stephen Cook talks to students at the Heidelberg Laureates Forum.

The 40th Annual ACM International Collegiate Programming Contest brought 128 teams to Phuket, Thailand.

News From . . .

. . . ACM Europe Council

The ACM Europe Council made further inroads in bringing greater visibility of ACM activities across Europe. The Council comprises European computer scientists committed to fostering the relevance of ACM in Europe, and is focused on a wide range of European ACM activities, from high-quality ACM conferences in Europe, to expanding ACM chapters, to encouraging greater participation of Europeans in all dimensions of ACM, to establishing a center of references or national and international funding agencies in Europe.

. . . ACM India Council

In an effort to bring some IT curriculum uniformity to India's school systems, as well as influence the quality of the content being taught, ACM's India Education Committee created a national education initiative, CSPathshala, to teach computing as a science in all schools by 2030. This effort has brought together top industry and academic institutions throughout India to work together. This year a team of 50 volunteers helped create a detailed curriculum, parts of which are now being piloted in 15 schools in Pune. Once the curriculum is finalized, the committee will add more schools into the fold.

The MSR-ACM India Academic Research Summit was held last January at the Infosys campus in Pune. A key objective of the summit was to create a mechanism for the Indian research community to have a common platform to come together and foster collaboration in cutting-edge research areas like CS. The summit saw participation from faculty and students from premier CS research institutes and should prove to be immensely beneficial in their ongoing and future research studies.

. . . ACM China Council

ACM China Council continues to strengthen its presence throughout the nation through conferences, chapters, and ACM members. A team of computing professors, led by ACM China's subcommittee on Education worked on the Chinese translation CS2013, which was released to a number of universities throughout China. This effort allows a growing number of universities to refer the ACM/IEEE Computing Curricula reports as more faculty members now use these reports to adjust the content of their CS programs.

Photo by Kristina Lidayova and Tomas Oravec

ACM-W Europe's womENcourage celebration drew participants from over 28 countries.

A celebration of 1994 Turing co-recipient Edward Feigenbaum on his 80th birthday at ACM event in Trivandrum, India.
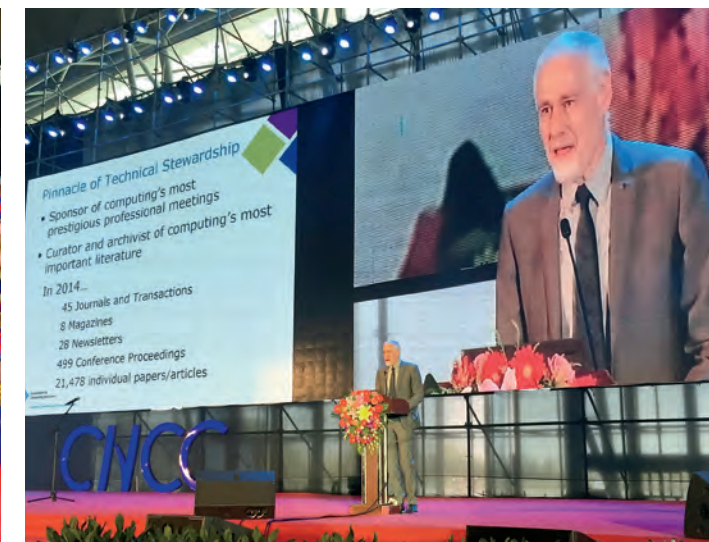
ACM President Alexander Wolf addressed the 2015 China National Computer Congress in Hefei.

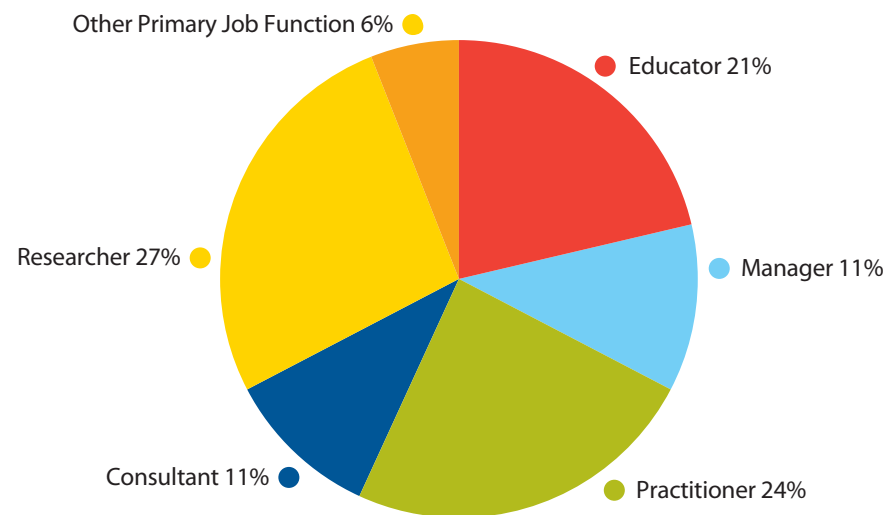ACM's China Council meeting last May was held in Beijing.

The Practitioners Board and Professional Development Committee (PDC) directed many new products and initiatives designed for computing professionals and managers.

In FY16, ACM PDC continued the successful webinar series with consistent monthly webcasts, tighter integration with SIGs, and a more diverse set of topics. Over 120 podcasts with industry leaders are now available from the ACM Learning Center, along with other products and services that reach over 100,000 professionals.

The *ACM Queue* website recorded more than 1.5 million page views over the last 12 months, a 20% increase over last year. Moreover, mobile access to the site rose 26% over the previous 12 months. Moreover, the *acmqueue* app finished its first full year; its user base continues to grow.
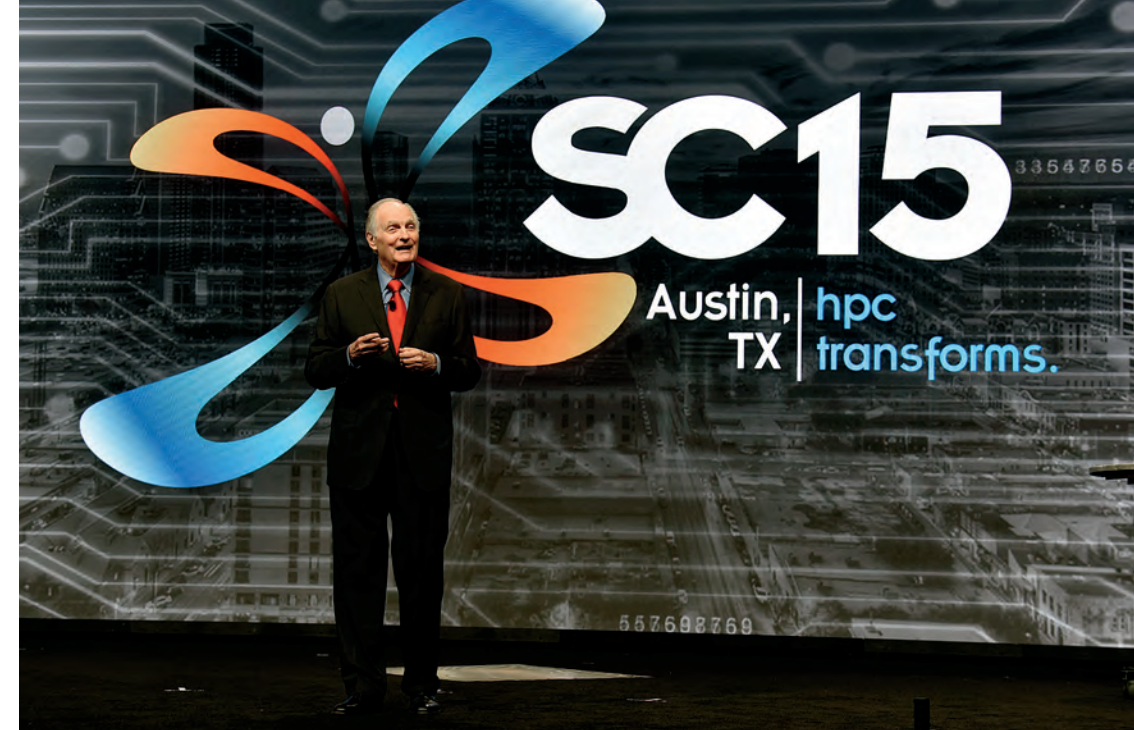
Breakout of ACM Membership FY16

- Other Primary Job Function 6%
- Educator 21%
- Manager 11%
- Practitioner 24%
- Consultant 11%
- Researcher 27%

Professional Members **65,000**

29,000 Student Members

FY16	CHAPTER STATS
170	total new chapters
27	new professional chapters worldwide
143	new student chapters worldwide

Actor, activist Alan Alda gave the keynote address at SC15. The conference broke attendance records

ACM made its debut at the popular South by Southwest (SXSW) Interactive conference this year, sponsoring three exciting sessions presented by leaders in human computer interaction and computer graphics. ACM's participation included a presentation on lighting Hollywood's real and virtual actors, the potential for instant 3D printing, and a panel discussion on practical advice for massive online experiments.

Conferences and opportunities for women to explore the opportunities in CS continue to flourish in India. More than 2,000 women technologists convened in Bangalore this year for the sixth annual Grace Hopper Celebration India. ACM helped organize the Third International Symposium on Women in Computing and Information as well as the CODhER hackathon for women and last April's HackHer Event at Amrita University.

Grace Hopper Celebration India was a rousing success.

Public Policy

ACM's U.S. Public Policy Council (USACM) made significant progress this year in delivering on its mission to educate and inform policy leaders, ACM members, the computing community, and the public about U.S. policy issues related to IT and computing.

In the last year, the council has engaged with Congressional advisory committees, multi-stakeholder partnerships and forums as well as submitted technology feedback to many federal agencies. USACM commented on the potential benefits and challenges of the Internet of Things, security research exemptions, the Digital Millennium Copyright Act, U.S. participation in international cybersecurity standardization, federal regulations governing the protection of research participants and ICT accessibility standards.

The ACM Europe Public Policy Committee promotes the exchange of ideas on technology and computing policy issues with the European Commission, governmental bodies, and the informatics and computing communities. In FY16, EUACM established a strategic partnership with Science | Business, an independent policy and outreach organization with strong Commission ties, and is now part of their network.

Code2018, a two-year project dedicated to updating ACM's Code of Ethics, launched in FY16. The code, which has become the industry's de facto blueprint for professional conduct since it was introduced in 1992, will be reworked to include all the new technologies and technological issues that are now part of our digital landscape.

USACM members inform policy leaders in Washington, D.C.

Digital Connections

ACM-W and NCWIT secured a Google grant of $500,000 to support the many initiatives designed to draw women into the field and the Association. In fact, the number of ACM-W chapters has doubled in the last two years, due in part to the growth of ACM-W Celebrations. The grant funds will be used to develop tools and resources for ACM-W chapters, seed 35 new ACM-W Chapters over the course of the next two years, and connect all ACM-W Chapters through a national network.

ACM's e-Rights transfer application system completed its third year of operations. This comprehensive system gives authors new options for managing rights and permissions. The system, used by all ACM journals, proceedings, and magazines, completely automates the rights transfer process.

SIGMOBILE launched a YouTube channel through which it provides video talks from its major conferences and workshops. This content is publicly available; the channel boasts 11,000 views its first year. The channel has allowed the SIG to reach many more constituents, including viewers from Asia, South America, and Africa.

More and more readers are accessing ACM's magazines via mobile devices. *Communications of the ACM*, *ACM Inroads*, *XRDS*, and *Interactions* are accessible as easy-to-use mobile apps for iPhones, iPads, and Android devices. These downloadable apps enable members to access ACM magazines in a new way.

Recognition

Whitfield Diffie and Martin E. Hellman, recipients of the 2015 ACM A.M. Turing Award, were honored at the annual ACM Awards Banquet last June. Diffie and Hellman were recognized for their fundamental contributions to modern cryptography. Their groundbreaking 1976 paper, "New Directions in Cryptography," introduced the ideas of public-key cryptography and digital signatures, which are the foundation for most security protocols on the Internet today.

The first ACM/CSTA Cutler-Bell Prize in High School Computing was awarded this year. The prize recognizes computer science talent in high school students; its goal is to promote the field of computer science and encourage its study. The four high school students receiving this inaugural honor each received a $10,000 prize.

The ACM Fellows Program recognized 42 members for their contributions to computing and computer science in FY16.

ACM also named 49 new Distinguished Members, of which there were two Distinguished Educators, five Distinguished Engineers, and 42 Distinguished Scientists.

2015 ACM A.M. Turing Award co-recipients Whitfield Diffie (left) and Martin E. Hellman.
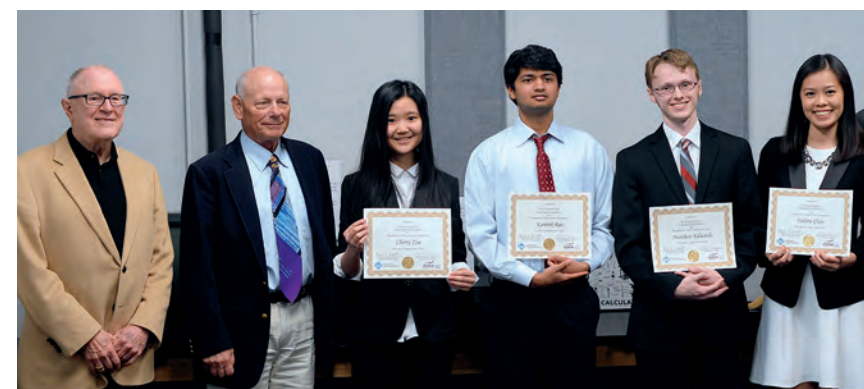

ACM welcomed 42 new Fellows.

ACM Annual Awards Banquet honored leading lights in the computer science field.

ACM Distinguished Service Award recipient Ron Perrot

ACM/CSTA Cutler-Bell Award Ceremony, March 19th, 2016. L-to-R: Gordon Bell, David Cutler, Cherry Zou, Karthik Rao, Matthew Edwards, and Jeanette Chen.

ACM AWARD RECIPIENTS

A.M. Turing Award
Whitfield Diffie
and Martin E. Hellman

ACM Prize in Computing
Stefan Savage

ACM-AAAI Allen Newell Award
Eric Horvitz

Grace Murray Hopper Award
Brent Waters

Karl V. Karlstrom Outstanding Educator Award
Armando Fox

Distinguished Service Award
Ron Perrott

Paris Kanellakis Theory and Practice Award
Michael Luby

Software System Award
Richard Stallman
GNU Compiler Collection

ACM-W Athena Lecturer Award
Jennifer Rexford

2016 ACM-IEEE CS Eckert-Mauchly Award
Uri Weiser

2015 ACM-IEEE CS Ken Kennedy Award
Katherine Yelick

ACM Presidential Award
Gerhard Schimpf
Chris Stephenson

Doctoral Dissertation Award
Julian Shun

Honorable Mention
Siavash Mirarab
Aaron Sidford

ACM India Doctoral Dissertation Award
Aritra Hazra

ACM China Doctoral Dissertation Award
Shuo Wang
Lan Zhang

ACM China Rising Star Award
Peng Lui
Fan Wu

ACM/CSTA Cutler-Bell Prize in High School Computing
Valerie Chen
Matthew Edwards
Karthik Rao
Cherry Zou

Financial Statements

Statement of Activities:
Year ended June 30, 2016 (in Thousands)

REVENUE	Unrestricted Net Assets	Temporarily Restricted Net Assets	Total
Membership dues	$7,626		$7,626
Publications	21,198		21,198
Conferences and other meetings	29,317		29,317
Interests and dividends	1,963		1,963
Net appreciation of investments	(1,870)		(1,870)
Contributions and grants	4,622	$2,932	7,554
Other revenue	225		225
Net assets released from restrictions	1,754	(1,754)	0
Total Revenue	**64,835**	**1,178**	**66,013**
EXPENSES			
Program:			
Membership processing and services	$905		$905
Publications	10,868		10,868
Conferences and other meetings	24,968		24,968
Program support and other	11,001		11,001
Total	**47,742**		**47,742**
Supporting services:			
General administration	11,819		11,819
Marketing	1,362		1,362
Total	**13,181**		**13,181**
Total expenses	**60,923**		**60,923**
Increase (decrease) in net assets	3,912	1,178	5,090
Net assets at the beginning of the year	94,596	7,661	102,257
Net assets at the end of the year	**$98,508**	**$8,839**	**$107,347***

* Includes SIG Fund balance of $47,096K

Balance Sheet: June 30, 2016 (in Thousands)

ASSETS	
Cash and cash equivalents	$41,230
Investments	91,764
Accounts receivable and other current assets	5,622
Deferred conference expenses and other assets	8,177
Fixed assets, net of accumulated depreciation and amortization	889
Total Assets	**$147,682**

LIABILITIES AND NET ASSETS	
Liabilities:	
Accounts payable, accrued expenses, and other liabilities	$10,973
Unearned conference, membership, and subscription revenue	29,362
Total liabilities	**$40,335**
Net assets:	
Unrestricted	98,508
Temporarily restricted	8,839
Total net assets	**107,347**
Total liabilities and net assets	**$147,682**

Optional Contributions Fund — Program Expense ($000)	
Education Board accreditation	$95
USACM Committee	12
Total expenses	**$107**